

PONY

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MATH

Main Book



5

Primary
First Term

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Mathematical Operations and Algebraic Thinking



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Theme

1

Number Sense and Operations

Theme Units

Unit

1

Decimal Place Value and Computation

Concept 1.1: Decimals to the
Thousandths Place

Concept 1.2: Adding and Subtracting
Decimals

Unit

2

Number Relationships

Concept 2.1: Expressions,
Equations, and the
Real World

Concept 2.2: Factors and Multiples

Unit

3

Multiplication with Whole Numbers

Concept 3.1: Models for
Multiplication

Concept 3.2: Multiplying 4-Digit
Numbers by 2-Digit
Numbers

Unit

1

Decimal Place Value and Computation

Concept 1.1

Decimals to the Thousandths Place

Lesson

1

Decimals to the Thousandths Place

Learning Objectives:

By the end of this lesson, the student will be able to:

- Read decimal numbers to the Thousandths place.
- Write decimal numbers to the Thousandths place.

Lessons

2&3

Place Value Shuffle – Composing and Decomposing Decimals

Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain how a digit changes value as it moves to the left or right in a decimal or whole number.
- Compose and decompose decimals in multiple ways.

Lesson

4

Comparing Decimals

Learning Objective:

By the end of this lesson, the student will be able to:

- Compare decimals to the Thousandths place.

Lesson

5

Rounding Decimals

Learning Objective:

By the end of this lesson, the student will be able to:

- Round numbers to the nearest Tenth, Hundredth, or Thousandth.

1 Lesson

Decimals to the Thousandths Place

Remember

The whole one can be divided into

Ten equal parts

Each part is called **one tenth**.

$$\frac{1}{10} = 0.1$$

One hundred equal parts

Each part is called **one hundredth**.

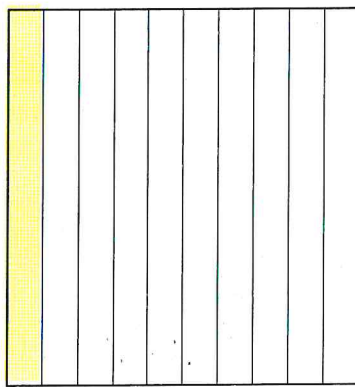
$$\frac{1}{100} = 0.01$$

One thousand equal parts

Each part is called **one thousandth**.

$$\frac{1}{1000} = 0.001$$

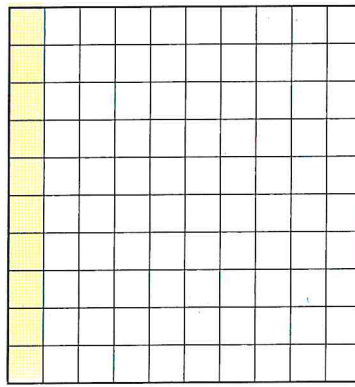
Note that: In decimals, zeros can be added to the **right** of the last non-zero digit without changing the value of the number.



0.1

(One tenth)

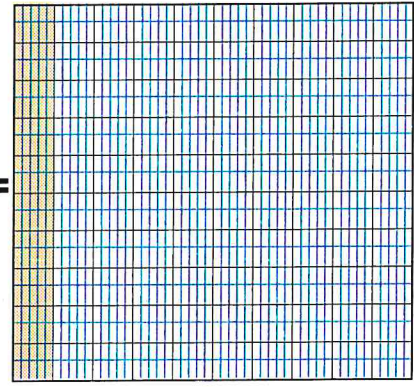
=



0.10

(Ten hundredths)

=



0.100

(One hundred thousandths)

Also: $0.2 = 0.20 = 0.200$, $0.3 = 0.30 = 0.300$, ... and so on.

Decimals

- A decimal is a number that consists of both a whole number and a fractional part.
- Decimal numbers lie between integers and represent the numerical values for quantities that are whole plus some part of a whole.

Whole number section (integer)

To the **left** of the decimal point

Fractional part

To the **right** of the decimal point

357 . **94**

It's read as: Three hundred fifty-seven **and** ninety-four hundredths.

Reading Numbers from One Milliard to Thousandths

To read any decimal:

- Divide the whole number into numerical groups according to the place value table.
- Read the number from the **left**; each number group is followed by its name. Separate the integer and the decimal with the word "and".
- Read the fractional parts followed by the name of the **last decimal part** on the **right** (according to the number of decimal places) **as shown**.

Whole Numbers										Decimal Point	Decimals		
Milliards	Millions			Thousands			Ones				Tenths	Hundredths	Thousandths
Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones				
6	0	0	8	0	4	5	1	7	0				
6 milliard	8 million			45 thousand			170			17 hundredth			

The previous number (6,008,045,170.17) is read as:

Six milliard, eight million, forty-five thousand, one hundred seventy **and** seventeen hundredths.

► Note the reading of the following numbers:

0 . 6

is read as: Six tenths

0 . 2 8

is read as: Twenty-eight hundredths

0 . 0 2 7

is read as: Twenty-seven thousandths

0 . 4 9 8

is read as: Four hundred ninety-eight thousandths

5 . 7

is read as: Five and seven tenths

3 . 2 4

is read as: Three and twenty-four hundredths

5 8 . 3 9

is read as: Fifty-eight and thirty-nine hundredths

2 , 4 5 0 . 8

is read as: Two thousand, four hundred fifty and eight tenths

5 , 0 2 7 . 0 0 6

is read as: Five thousand, twenty-seven and six thousandths

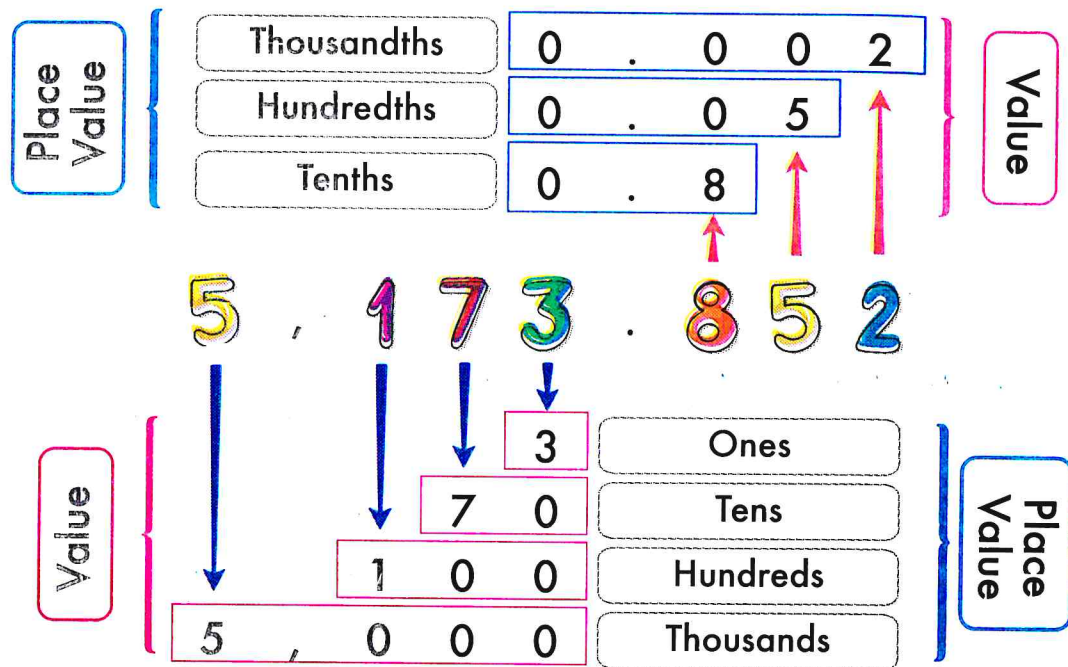
Practice 1 Write the following numbers in standard form:

- a Two tenths:
- b Five hundredths:
- c Thirteen hundredths:
- d Four thousandths:
- e Eighty-five thousandths:
- f Seven hundred ninety-two thousandths:
- g Two and three tenths:
- h Forty-one and eight hundredths:
- i Thirty-two and seventy-four hundredths:
- j Fifty and sixteen thousandths:
- k Nine hundred sixty-one and two hundred five thousandths:

Practice 2 Write the following numbers in word form:

- 0.9:
- 0.06:
- 0.69:
- 0.045:
- 0.824:
- 6.8:
- 25.08:
- 945.25:
- 20.036:
- 358.124:

The Value of Digits from Milliard to Thousandth



From the previous figure:

We notice that the place value and the value for each digit are as follows:

Place Value		Value
Thousandths	← 2 →	0.002
Hundredths	← 5 →	0.05
Tenths	← 8 →	0.8
Ones	← 3 →	3
Tens	← 7 →	70
Hundreds	← 1 →	100
Thousands	← 5 →	5,000

Practice 3 Complete the following:

- a In 56,258.96, the digit 9 is in the place, and its value is
- b In 87,022.8, the digit 7 is in the place, and its value is
- c In 605.234, the digit 0 is in the place, and its value is
- d In 2,845.127, the digit 5 is in the place, and its value is

Practice 4 Write the **place value** and the **value** of the encircled digit in the following numbers:

	Number	Place Value	Value
a	452,207.56	.....	.....
b	6,500,739.7	.....	.....
c	9,009.009	.....	.....
d	37,000,157.128	.....	.....
e	80,218.039	.....	.....



1 Choose the correct answer:

- a The value of the digit 3 in 12.358 is (30 or 0.3 or 3 or 0.003)
- b The place value of the digit 9 in 4.649 is the
(Thousandths or Tens or Tenths or Hundredths)
- c Seventy thousandths = (0.7 or 0.70 or 0.007 or 0.07)

2 Complete the following:

- a 63.705 (in word form) is
- b Twenty-four and forty-eight thousandths (in standard form) is
- c In 592.74, the digit 4 is in the place, and its value is

3 Match:

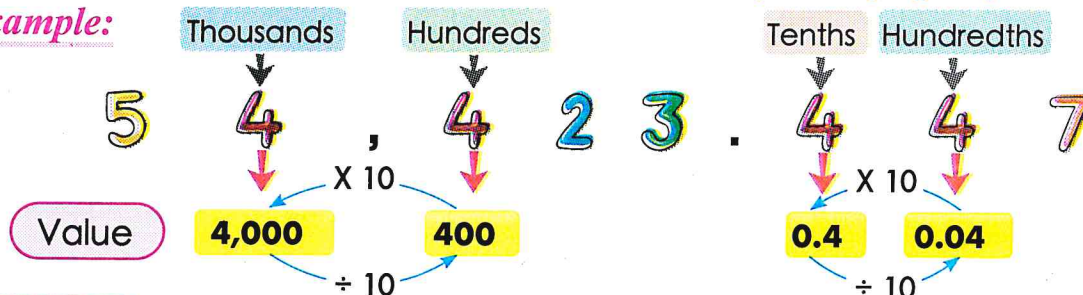
- | | | |
|-----------------------|---------|---|
| a Three thousandths • | • 0.03 | 1 |
| b Three hundredths • | • 0.3 | 2 |
| c Three hundreds • | • 0.003 | 3 |
| d Three tenths • | • 300 | 4 |

2&3 Lessons

Place Value Shuffle Composing and Decomposing Decimals

The value of the digit changes within the number by changing its place.

Example:



From above: the value of the digit:

- Increases by 10 times ($\times 10$) as it moves to the **left**.
- Decreases by 10 times ($\div 10$) as it moves to the **right**.

Using the Place Value Charts to Solve Multiplying and Dividing by 10 Problems

Example: Use the place value chart to solve the following problem:

$$75.4 \times 10$$

Whole Numbers						Decimal Point	Decimals		
Thousands			Ones						
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
				7	5		.	4	
			7	5	4				

$\times 10$

- The value of 7 increased when multiplying by 10 from 70 to 700
 - The value of 5 increased when multiplying by 10 from 5 to 50
 - The value of 4 increased when multiplying by 10 from 0.4 to 4
- 75.4 754

Therefore:

The value of the whole number 75.4 increased when multiplying by 10 from 75.4 to 754. So, $75.4 \times 10 = 754$.

Practice 1

Use the place value charts to solve the following problems. Fill in the blanks to show how the value of each digit has changed:

a 386×10

Whole Numbers						Decimal Point	Decimals		
Thousands			Ones						
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
							.		
						.			

- The value of (increased/decreased) when multiplying by **10** from to
- The value of (increased/decreased) when multiplying by **10** from to
- The value of (increased/decreased) when multiplying by **10** from to
- Therefore, the value of the whole number (increased/decreased) when multiplying by **10** from to **So, $386 \times 10 =$ **

b 2.5×10

Whole Numbers						Decimal Point	Decimals		
Thousands			Ones						
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			
						.			

- The value of (increased/decreased) when multiplying by **10** from to
- The value of (increased/decreased) when multiplying by **10** from to
- Therefore, the value of the whole number (increased/decreased) when multiplying by **10** from to **So, $2.5 \times 10 =$ **

Example: Use the place value chart to solve the following problem:

$$75.4 \div 10 = 7.54$$

Whole Numbers						Decimal Point	Decimals		
Thousands			Ones				Tenths	Hundredths	Thousandths
Hundreds	Tens	Ones	Hundreds	Tens	Ones				
				7	5	.	4		
					7	.	5	4	

÷10

- The value of **7** decreased when dividing by 10 from **70** to **7**
- The value of **5** decreased when dividing by 10 from **5** to **0.5**
- The value of **4** decreased when dividing by 10 from **0.4** to **0.04**

Therefore:

The value of the whole number 75.4 decreased by a factor of 10 from 75.4 to 7.54. **So,** $75.4 \div 10 = 7.54$.

Practice 2

Use the place value charts to solve the following problems. Fill in the blanks to show how the value of each digit has changed:

a $915 \div 10$

Whole Numbers						Decimal Point	Decimals		
Thousands			Ones				Tenths	Hundredths	Thousandths
Hundreds	Tens	Ones	Hundreds	Tens	Ones				
						.			
						.			

- The value of (increased/decreased) when dividing by **10** from to
- The value of (increased/decreased) when dividing by **10** from to
- The value of (increased/decreased) when dividing by **10** from to
- Therefore, the value of the whole number (increased/decreased) when dividing by **10** from to **So,** $915 \div 10 = \dots\dots\dots$

b $8.7 \div 10$

Whole Numbers						Decimal Point	Decimals		
Thousands			Ones						
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			
						.			

- The value of (increased/decreased) when dividing by **10** from to
- The value of (increased/decreased) when dividing by **10** from to
- Therefore, the value of the whole number (increased/decreased) when dividing by **10** from to So, $8.7 \div 10 = \dots\dots\dots$

NOTES

- When multiplying by **10**,
move all digits of the number **one** place to the **left**.
- When dividing by **10**,
move all digits of the number **one** place to the **right**.

Practice 3 Find the result:

- a $75.65 \times 10 = \dots\dots\dots$
- b $83.19 \div 10 = \dots\dots\dots$
- c $3.587 \times 10 = \dots\dots\dots$
- d $952.4 \div 10 = \dots\dots\dots$
- e $254 \times 10 = \dots\dots\dots$
- f $360 \div 10 = \dots\dots\dots$

Decomposing Decimal Numbers in Expanded Forms

Extended form is used to decompose decimals. Note the following:

a $0.025 = 0.02 + 0.005$

b $0.25 = 0.2 + 0.05$

c $4721.7 = 4,000 + 700 + 20 + 1 + 0.7$

d $472.17 = 400 + 70 + 2 + 0.1 + 0.07$

e $47.217 = 40 + 7 + 0.2 + 0.01 + 0.007$

NOTE

Decimals can be decomposed in several ways, as in the following example:



Practice 4 Decompose the following numbers:

a $34.527 =$ (1st Way: Expanded Form)
 $=$ (2nd Way)
 $=$ (3rd Way)

b $21.045 =$ (1st Way: Expanded Form)
 $=$ (2nd Way)
 $=$ (3rd Way)

c $14.932 =$ (1st Way: Expanded Form)
 $=$ (2nd Way)
 $=$ (3rd Way)

d $231.128 =$ (1st Way: Expanded Form)
 $=$ (2nd Way)
 $=$ (3rd Way)

e $508.17 =$ (1st Way: Expanded Form)
 $=$ (2nd Way)
 $=$ (3rd Way)

Practice 5 Compose the following as decimal numbers:

- a $200 + 30 + 0.5 + 0.007 =$
- b $60 + 5 + 0.08 + 0.009 =$
- c $24 + 0.075 =$
- d $65 + 0.7 + 0.02 + 0.009 =$
- e $125 + 0.87 =$

Quiz?

10

1 Choose the correct answer:

- a $36.17 \times 10 =$ (3.617 or 36.17 or 3617 or 361.7)
- b $624.8 \div 10 =$ (624.8 or 6.248 or 62.48 or 6248)
- c $20 + 0.1 + 0.05 + 0.006 =$ (215.06 or 20.156 or 21.56 or 215.06)
- d $0.007 + 8 + 0.2 + 500 =$
(508.207 or 7.825 or 502.807 or 507.28)

2 Decompose the following numbers:

- a $24.15 =$ (1st Way :Expanded form)
 $=$ (2nd Way)
 $=$ (3rd Way)
- b $30.025 =$ (In Word Form)

3 Match:

a 31.49 •

• $3 + 0.1 + 0.04 + 0.009$ 1

b 3.149 •

• $300 + 10 + 0.9 + 4$ 2

c 314.9 •

• $0.09 + 0.4 + 1 + 30$ 3

4

Lesson

Comparing Decimals

Example: Compare between **85.367** and **85.368** using the following steps:

Step 1	Step 2	Step 3	Step 4
Compare the whole numbers.	Compare the digits in the Tenths place.	Compare the digits in the Hundredths place.	Compare the digits in the Thousandths place.
85.367 85.368	85.367 85.368	85.367 85.368	85.367 85.368
If they are equal			

Practice 1 Compare using (<, =, or >):

- | | | | |
|-------------------------------|--------|-------------------------------|--------|
| a 45.057 <input type="text"/> | 45.100 | b 98.013 <input type="text"/> | 98.101 |
| c 50.009 <input type="text"/> | 50.100 | d 10.1 <input type="text"/> | 10.011 |
| e 12.01 <input type="text"/> | 2.099 | f 34.5 <input type="text"/> | 34.500 |

Practice 2 Select the **greatest** number:

- a 1.401 , 1.341 , 1.440 , 1.041 b 1.055 , 1.3 , 1.28 , 1.045

Practice 3 Select the **smallest** number:

- a 20.09 , 20.1 , 20.001 , 20.011 b 9.003 , 3.009 , 30.09 , 90.03

Practice 4 Circle the numbers that are **greater** than 35.8:

35.08 , 53.6 , 35.92 , 3.589 , 35.099

Practice 5 Circle the numbers that are **less** than 25.09:

25.5 , 52.09 , 25.009 , 2.509 , 29.05

Practice 6 Arrange the following numbers in an **ascending** order:

45.21 , 54.12 , 45.12 , 54.21 , 51.24

Practice 7 Arrange the following numbers in a **descending** order:

2.011 , 21.010 , 12.001 , 100.12 , 10.012

Quiz?

10

1 Choose the correct answer:

a 54.54 400.45

(> or = or <)

b 712.7 71.99

(> or = or <)

c 11 0.999

(> or = or <)

2 Arrange the following numbers in an **ascending** order:

257.12 , 251.72 , 725.12 , 257.21

3 Circle the numbers that are **less** than 2.05:

2.5 , 2.025 , 0.555 , 2.1 , 2.25 , 5.02 , 1.99 , 2.008

5 Lesson

Rounding Decimals

To the Nearest

1

Whole Number

Unit

Ones

2

Tenth

One decimal place

0.1 "means" $\frac{1}{10}$

3

Hundredth

Two decimal places

0.01 "means" $\frac{1}{100}$

4

Thousandth

Three decimal places

0.001 "means" $\frac{1}{1,000}$

Rounding Strategies

First: The Midpoint Strategy:

Example: Round each of the following numbers:

a **24.7** (To the nearest whole number)

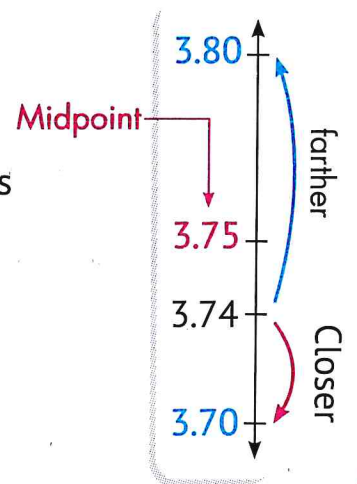
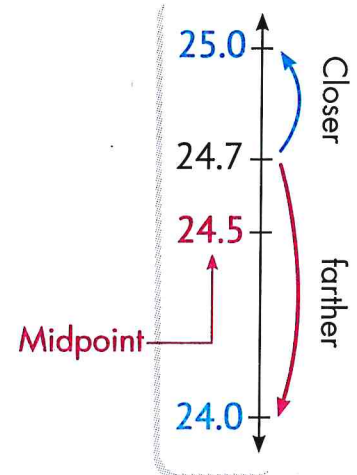
- The number **24.7** is located between the numbers **24.0** and **25.0**.
- The midpoint between the two numbers is **24.5**.
- 24.7** is closer to **25.0**.

So: $24.7 \approx 25$ (To the nearest whole number)

b **3.74** (To the nearest Tenth)

- The number **3.74** is located between the numbers **3.70** and **3.80**.
- The midpoint between the two numbers is **3.75**.
- 3.74** is closer to **3.70**.

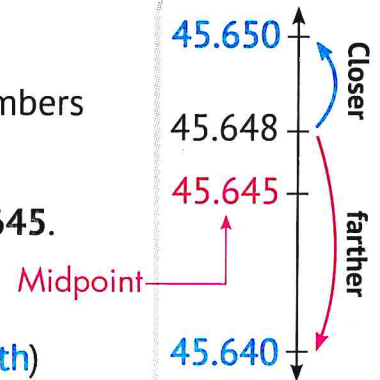
So: $3.74 \approx 3.7$ (To the nearest Tenth)



c 45.648 (To the nearest **Hundredth**)

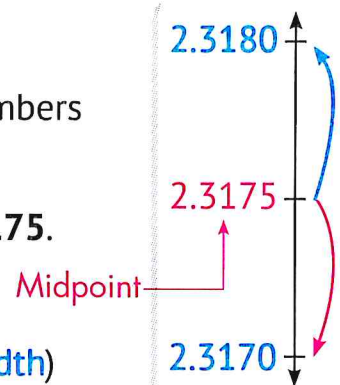
- The number **45.648** is located between the numbers **45.640** and **45.650**.
- The midpoint between the two numbers is **45.645**.
- 45.648** is closer to **45.650**.

So: $45.648 \approx 45.65$ (To the nearest **Hundredth**)


d 2.3175 (To the nearest **Thousandth**)

- The number **2.3175** is located between the numbers **2.3170** and **2.3180**.
- The midpoint between the two numbers is **2.3175**.
- 2.3175** is located at the midpoint.

So: $2.3175 \approx 2.318$ (To the nearest **Thousandth**)

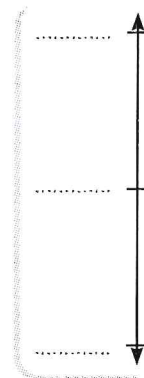
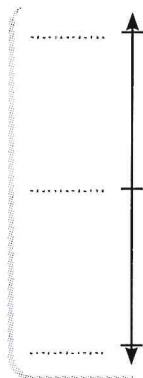

Practice 1

Label the midpoint of the number line. Place the given decimal number at its proper location, and then round to the nearest **whole number**:

a $3.258 \approx \dots\dots\dots$

b $65.8 \approx \dots\dots\dots$

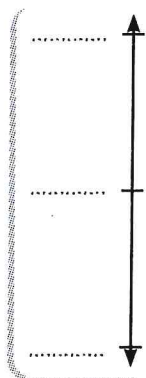
c $19.67 \approx \dots\dots\dots$



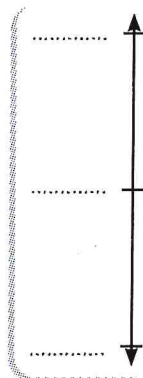
Practice 2

Label the midpoint of the number line. Place the given decimal number at its proper location, and then round to the nearest **Tenth**:

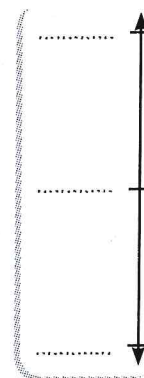
a $0.65 \approx$



b $45.54 \approx$



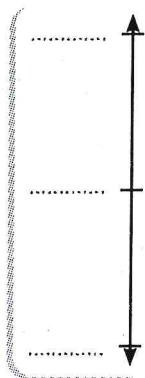
c $3.992 \approx$



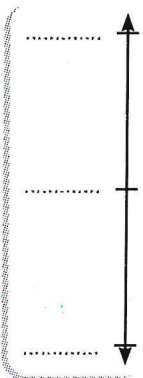
Practice 3

Label the midpoint of the number line. Place the given decimal number at its proper location, and then round to the nearest **Hundredth**:

a $6.357 \approx$



b $0.253 \approx$



c $9.999 \approx$



Second: Rounding Rule Strategy:

Example: Round the following numbers:

a $9.675 \approx$

(To the nearest **whole number**)

b $6.24 \approx$

(To the nearest **Tenth**)

c $56.839 \approx$

(To the nearest **Hundredth**)

d $2.3565 \approx$

(To the nearest **Thousandth**)

Answer:

1 Select the digit in the place to be rounded.

a 9.675	b 6.24	c 56.839	d 2.3565
--------------	-------------	---------------	---------------

2 Replace the digits in the places that precede the previously selected digit with **zeros**.

a 9.675 ↓ ↓ ↓ 0 0 0	b 6.24 ↓ 0	c 56.839 ↓ 0	d 2.3565 ↓ 0
--------------------------------	-----------------------	-------------------------	-------------------------

3 Look at the digit in the place preceding the place to be rounded directly.

If this digit is **0, 1, 2, 3, or 4**,
the number of the specified
place remains **unchanged**.

If this digit is **5, 6, 7, 8 or 9**,
we **add 1** to the specified
digit.

Example: Round the following numbers to the nearest:

a 9.675 ↓ ↓ ↓ 10.000 $9.675 \approx 10$ (Whole number)	b 6.24 ↓ ↓ 6.20 $6.24 \approx 6.2$ (Tenth)	c 56.839 ↓ ↓ ↓ 56.840 $56.839 \approx 56.84$ (Hundredth)	d 2.3565 ↓ ↓ ↓ 2.3570 $2.3565 \approx 2.357$ (Thousandth)
--	--	--	---

Practice 4 Round each of the following numbers:

- a) $753.5 \approx$ (To the nearest **whole number**)
- b) $56.25 \approx$ (To the nearest **Tenth**)
- c) $63.78 \approx$ (To the nearest **Ten**)
- d) $782.475 \approx$ (To the nearest **Hundredth**)
- e) $956.285 \approx$ (To the nearest **Hundred**)
- f) $0.0396 \approx$ (To the nearest **Thousandth**)

Practice 5 Fill in the chart as you round each decimal to the stated place value:

	Number	Round to the Nearest Whole Number	Round to the Nearest Tenth	Round to the Nearest Hundredth
a	56.284	.....	.....	.....
b	572.089	.....	.....	.....
c	0.896	.....	.....	.....
d	50.101	.....	.....	.....





1 Choose the correct answer for each of the following:

- a $3.159 \approx 3.2$ is rounded to the nearest
(Tenth or Hundredth or whole number or Ten)
- b $25.853 \approx 30$ is rounded to the nearest
(Tenth or Hundredth or whole number or Ten)
- c $77.779 \approx 77.78$ is rounded to the nearest
(Tenth or Hundredth or whole number or Ten)
- d $3.999 \approx 0$ is rounded to the nearest
(Tenth or Hundredth or whole number or Ten)

2 Complete the following:

- a $23.567 \approx$ (To the nearest whole number)
- b $59.483 \approx$ (To the nearest Tenth)
- c $369.254 \approx$ (To the nearest Hundredth)
- d $0.475 \approx$ (To the nearest whole number)
- e $15.28 \approx$ (To the nearest Ten)
- f $0.089 \approx$ (To the nearest Hundredth)



Unit

1

Decimal Place Value and Computation

Concept 1.2

Adding and Subtracting Decimals

Lessons

6&7

Estimating Decimal Sum Modeling Decimal Addition

Learning Objectives:

By the end of these lessons, the student will be able to:

- Estimate sums of decimal numbers.
- Model decimal addition.
- Apply strategies to add decimals to the Thousandths place.

Lessons

8-11

Modeling Subtracting Decimals Estimating Decimal Differences Subtracting to the Thousandths Place Decimal Story Problems

Learning Objectives:

By the end of these lessons, the student will be able to:

- Model decimal subtraction.
- Estimate differences of decimal numbers.
- Apply strategies to subtract decimals to the Thousandths place.
- Check the reasonableness of his/her answers.
- Add and subtract decimal numbers to the Thousandths place to solve story problems.

6&7 Lessons

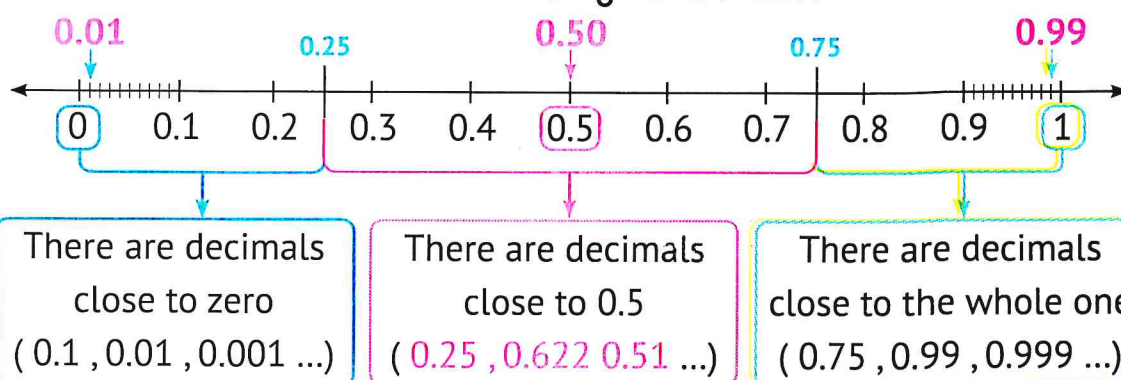
Estimating Decimal Sum Modeling Decimal Addition

Estimating the Sum of Decimals

1 Benchmark Strategy:

The numbers (0, 0.5, and 1) are benchmark numbers.

Note the following number line:



Example: Estimate the sum of the following using benchmark decimals:

a

$$0.65 + 0.456$$

$$\downarrow \quad \downarrow$$

$$0.5 + 0.5 = 1$$

0.65 is close to 0.5

0.456 is close to 0.5

b

$$0.001 + 0.98$$

$$\downarrow \quad \downarrow$$

$$0 + 1 = 1$$

0.001 is close to 0

0.98 is close to 1

c

$$0.55 + 0.9$$

$$\downarrow \quad \downarrow$$

$$0.5 + 1 = 1.5$$

0.55 is close to 0.5

0.9 is close to 1

Practice 1

Estimate the sum of the following decimals using benchmark decimals:

a $0.89 + 0.533$ → Estimate: + =

b $0.42 + 0.03$ → Estimate: + =

c $0.612 + 0.021$ → Estimate: + =

d $0.55 + 0.482$ → Estimate: + =

Examples:

a

$$\begin{array}{r}
 75.15 + 21.95 \\
 = 75 + 0.15 + 21 + 0.95 \\
 = 75 + 0 + 21 + 1 \\
 = 97
 \end{array}$$

0.15 is close to 0.
0.95 is close to 1.

b

$$\begin{array}{r}
 32.987 + 15.482 \\
 = 32 + 0.987 + 15 + 0.482 \\
 = 32 + 1 + 15 + 0.5 \\
 = 48.5
 \end{array}$$

0.987 is close to 1.
0.482 is close to 0.5.

NOTE

- We can separate wholes and parts before using benchmark decimals.

Practice 2

Estimate the following sums using benchmark decimals:

- a $5.95 + 21.002 = \dots + \dots + \dots + \dots$
 $\longrightarrow \dots + \dots + \dots + \dots = \dots$
- b $6.552 + 82.495 = \dots + \dots + \dots + \dots$
 $\longrightarrow \dots + \dots + \dots + \dots = \dots$
- c $12.954 + 3.45 = \dots + \dots + \dots + \dots$
 $\longrightarrow \dots + \dots + \dots + \dots = \dots$

2 Rounding Strategy:

Example: Estimate the sum of $23.845 + 58.538$ using the rounding strategy:

$$\begin{array}{l}
 23.845 + 58.538 \left\{ \begin{array}{l}
 23.85 + 58.54 = 82.39 \text{ (To the nearest Hundredth)} \\
 23.8 + 58.5 = 82.3 \text{ (To the nearest Tenth)} \\
 24 + 59 = 83 \text{ (To the nearest One)} \\
 20 + 60 = 80 \text{ (To the nearest Ten)}
 \end{array} \right.
 \end{array}$$

The actual sum: $23.845 + 58.538 = 82.383$

NOTE

- Rounding to the lowest place value is the closest estimate to the actual sum.

Practice 3 Estimate the sum of the following decimals using the rounding strategy:

- a $2.3 + 3.7$ → Estimate: + = (To the nearest **One**)
- b $3.451 + 8.091$ → Estimate: + = (To the nearest **Hundredth**)
- c $9.98 + 4.56$ → Estimate: + = (To the nearest **Tenth**)
- d $4.9817 + 5.0192$ → Estimate: + = (To the nearest **Thousandth**)

Practice 4 Taha has **54.26** LE, and his brother has **45.75** LE. They want to combine their money to buy **4** kilograms of apples for **100** LE. Estimate to see if they have enough money.

.....

.....

.....

Modeling Decimal Addition

First:

The Decimal Model

Represent each of the two decimals with different colors, and their **sum** is the **number of squares of both colors**.

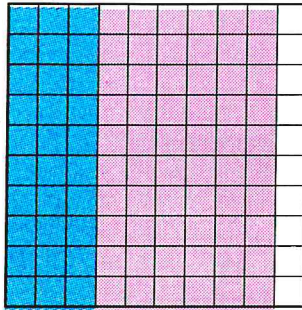
Second:

The Place Value Chart

Write the numbers in the place value chart and **add**.

Example: a $0.3 + 0.6$

Using the model



$0.3 + 0.6 = 0.9$

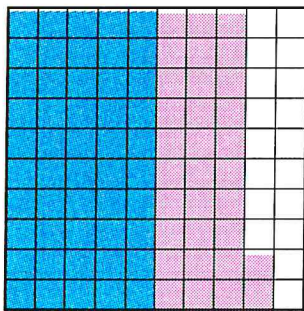
Using the place value chart

Whole Numbers			Decimal Point	Decimals	
Ones				Tenths	Hundredths
H	T	O			
		0			
		0	.	3	
		0	.	6	
		0	.	9	

$$\begin{array}{r} 0.3 \\ + 0.6 \\ \hline 0.9 \end{array}$$

b $0.5 + 0.32$

Using the model



$0.50 + 0.32 = 0.82$

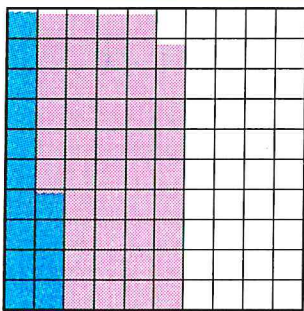
Using the place value chart

Whole Numbers			Decimal Point	Decimals	
Ones				Tenths	Hundredths
H	T	O			
		0	.	5	0
		0	.	3	2
		0	.	8	2

$$\begin{array}{r} 0.50 \\ + 0.32 \\ \hline 0.82 \end{array}$$

c $0.45 + 0.14$

Using the model



$0.14 + 0.45 = 0.59$

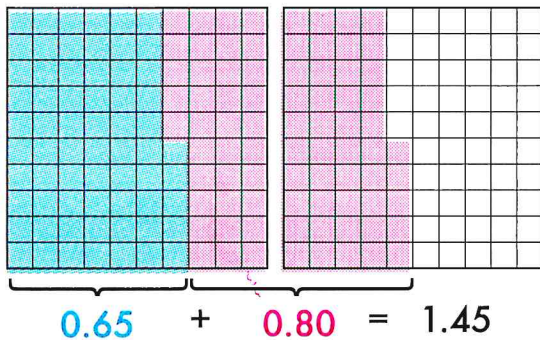
Using the place value chart

Whole Numbers			Decimal Point	Decimals	
Ones				Tenths	Hundredths
H	T	O			
		0	.	1	4
		0	.	4	5
		0	.	5	9

$$\begin{array}{r} 0.14 \\ + 0.45 \\ \hline 0.59 \end{array}$$

d $0.65 + 0.8$

Using the model



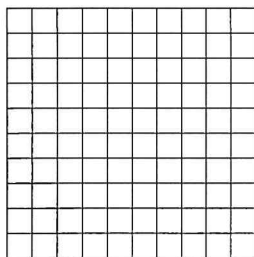
Using the place value chart

Whole Numbers			Decimal Point	Decimals	
Ones				Tenths	Hundredths
H	T	O			
		0	.	6	5
		0	.	8	0
		1	.	4	5

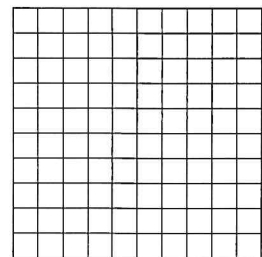
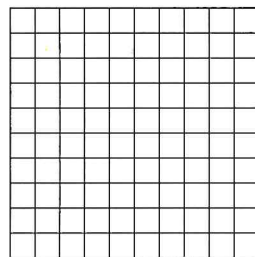
$$\begin{array}{r} 0.65 \\ + 0.80 \\ \hline 1.45 \end{array}$$

Practice 5 Use the following decimal models to find the result:

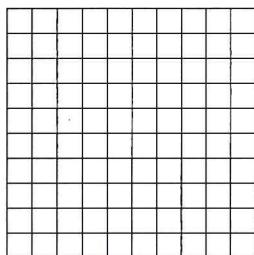
a $0.4 + 0.3 =$



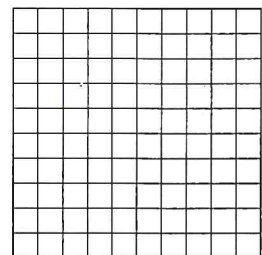
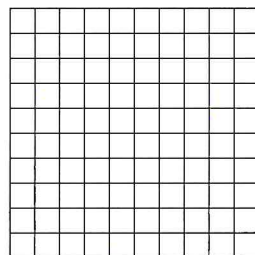
b $0.8 + 0.72 =$



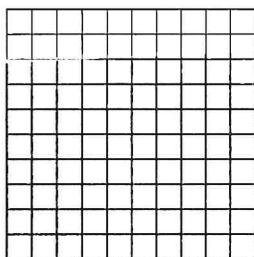
c $0.5 + 0.25 =$



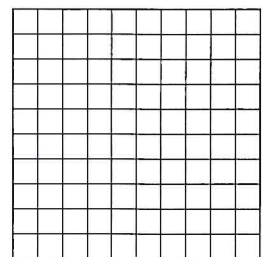
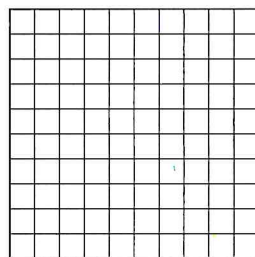
d $0.68 + 0.75 =$



e $0.28 + 0.15 =$



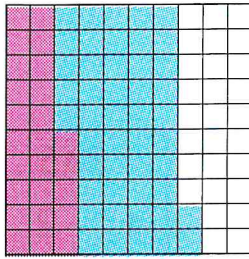
f $0.85 + 0.78 =$



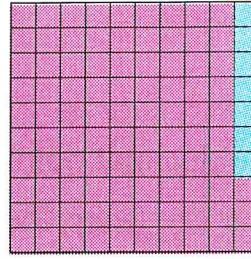
Practice 6

Write an expression to match the models.

Write an **addition problem**, and then find the result:



a $\dots + \dots = \dots$



b $\dots + \dots = \dots$

Practice 7

Use the **place value** chart to find the sum:

Example: $32.78 + 8.891 = 41.671$

Whole Numbers			Decimal Point	Decimals						
Ones				Tenths	Hundredths	Thousandths				
H	T	O								
	3	2					.	7	8	
		8					.	8	9	1
	4	1	.	6	7	1				

a $0.8 + 3.09 = \dots$

Whole Numbers			Decimal Point	Decimals					
Ones				Tenths	Hundredths	Thousandths			
H	T	O							
							.		
							.		
			.						

b $0.245 + 3.89 = \dots$

Whole Numbers			Decimal Point	Decimals					
Ones				Tenths	Hundredths	Thousandths			
H	T	O							
							.		
							.		
			.						

c $4.028 + 2.83 = \dots$

Whole Numbers			Decimal Point	Decimals						
Ones				Tenths	Hundredths	Thousandths				
H	T	O								
							.			
							.			
			.							

d $125.36 + 3.08 = \dots$

Whole Numbers			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
			.			
			.			

e $45.562 + 189.158 = \dots$

Whole Numbers			Decimal Point	Decimals					
Ones				Tenths	Hundredths	Thousandths			
H	T	O							
							.		
							.		
			.						

Adding Decimals

Example: $345.2 + 2.893$ **Vertically:**

Arrange the digits so that the decimal point is under the decimal point, the **Ones** under the **Ones**, the **Hundreds** under the **Hundreds**, and so on. Then, add the numbers. Empty spaces can be filled with zeros.

$$\begin{array}{r} 345.200 \\ + 2.893 \\ \hline 348.093 \end{array}$$

Horizontally: $345.200 + 2.893 = 248.093$ **Practice 8** Add:

a
$$\begin{array}{r} 45.368 \\ + 2.758 \\ \hline \end{array}$$

b
$$\begin{array}{r} 0.358 \\ + 34.19 \\ \hline \end{array}$$

c
$$\begin{array}{r} 45.98 \\ + 125.3 \\ \hline \end{array}$$

d $36.89 + 4.5 = \dots\dots\dots$

e $58 + 3.89 = \dots\dots\dots$

Practice 9 Complete, as in the example:**Example:** 25 Thousandths + 6 Hundredths = 85 Thousandths.

$$\begin{array}{l} 25 \text{ Thousandths} + 60 \text{ Thousandths} = 85 \text{ Thousandths} \\ (0.025 \quad + \quad 0.060 \quad = \quad 0.085) \end{array}$$

a 3 Thousandths + 4 Thousandths = Thousandths

b 7 Thousandths + 4 Thousandths = Thousandths

c 39 Thousandths + 5 Thousandths = Thousandths

d 3 Hundredths + 99 Thousandths = Thousandths

Practice 10

Diaa travels from Cairo to Alexandria and stops to rest in Tanta. If the distance between Cairo and Tanta is **92.61** km, and the distance between Tanta and Alexandria is **147.7** km, what is the distance that Diaa traveled?

Quiz?

10

1 Complete the following.

- a Estimate: $0.9 + 0.2 \rightarrow \dots + \dots = \dots$ (Benchmark Strategy)
- b Estimate: $3.24 + 12.55 \rightarrow \dots + \dots = \dots$
(To the nearest **Tenth**)
- c Estimate: $55.758 + 36.964 \rightarrow \dots + \dots = \dots$
(To the nearest **Hundredt**)
- d 5 Thousandths + 12 Thousandths = Thousandths

2 Use the **place value** chart to find the sum of **32.158 + 209.574**:

Whole Numbers			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
			.			
			.			

The sum

3 A merchant bought **93.543 kg** of fruits and the next day he bought **24.615 kg**. Estimate the total amount he bought in the two days.
(Use the strategy of rounding to the nearest **Tenth**.)

8-11 Lessons

Modeling Subtracting Decimals – Estimating Decimal Differences – Subtracting to the Thousandths Place – Decimal Story Problems

Modeling Decimal Subtraction

First:

The Decimal Model

Represent the greatest decimal fraction on the model, and then **remove** the squares of the **smaller** decimal fraction.

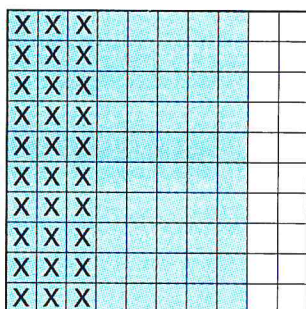
Second:

The Place Value Chart

Write the numbers in the place value chart and then **subtract**.

Example: Ⓐ $0.8 - 0.3$

Using the model



$$0.8 - 0.3 = 0.5$$

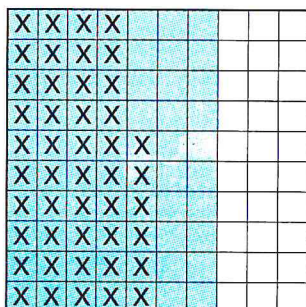
Using the place value chart

Whole Numbers			Decimal Point	Decimals	
Ones				Tenths	Hundredths
H	T	O			
		0	.	8	
		0	.	3	
		0	.	5	

$$\begin{array}{r} 0.8 \\ - 0.3 \\ \hline 0.5 \end{array}$$

Ⓑ $0.7 - 0.46$

Using the model



$$0.70 - 0.46 = 0.24$$

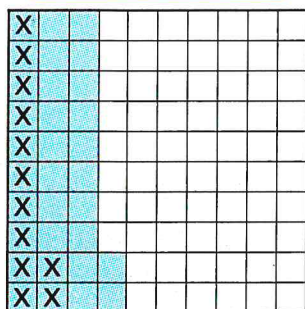
Using the place value chart

Whole Numbers			Decimal Point	Decimals	
Ones				Tenths	Hundredths
H	T	O			
		0	.	7	0
		0	.	4	6
		0	.	2	4

$$\begin{array}{r} 0.70 \\ - 0.46 \\ \hline 0.24 \end{array}$$

c $0.32 - 0.12$

Using the model



$0.32 - 0.12 = 0.20$

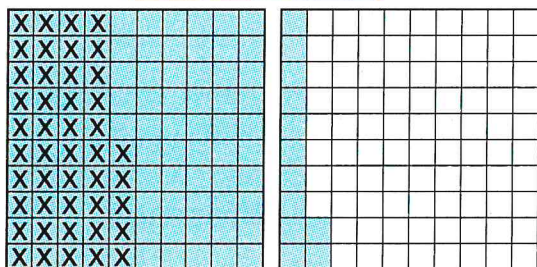
Using the place value chart

Whole Numbers			Decimal Point	Decimals	
Ones				Tenths	Hundredths
H	T	O			
		0	.	3	2
		0	.	1	2
		0	.	2	0

$$\begin{array}{r} 0.32 \\ - 0.12 \\ \hline 0.20 \end{array}$$

d $1.12 - 0.45$

Using the model



$1.12 - 0.45 = 0.67$

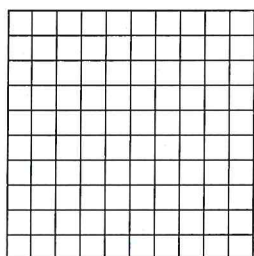
Using the place value chart

Whole Numbers			Decimal Point	Decimals	
Ones				Tenths	Hundredths
H	T	O			
		1	.	1	2
		0	.	4	5
		0	.	6	7

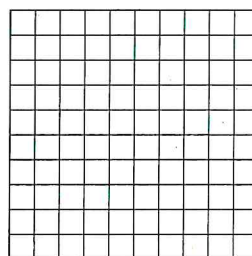
$$\begin{array}{r} 1.12 \\ - 0.45 \\ \hline 0.67 \end{array}$$

Practice 1 Use the decimal models to find the result:

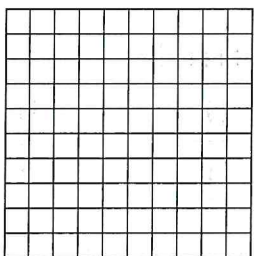
a $0.5 - 0.2 =$



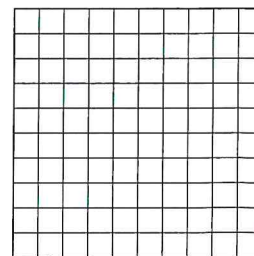
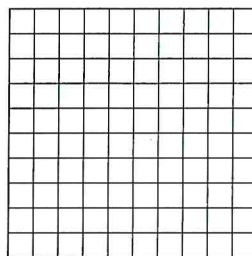
b $0.8 - 0.35 =$



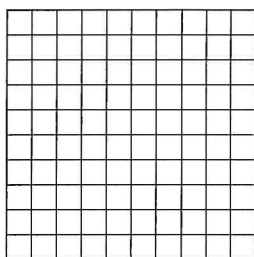
c $0.28 - 0.15 =$



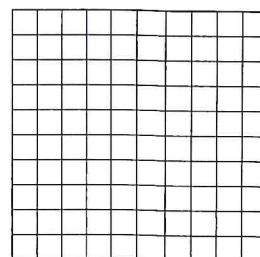
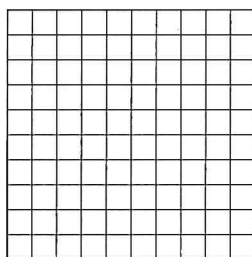
d $1.08 - 0.66 =$



e $0.58 - 0.4 =$

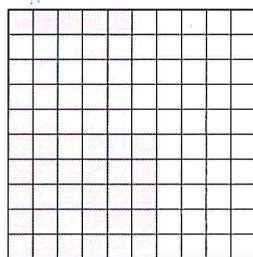
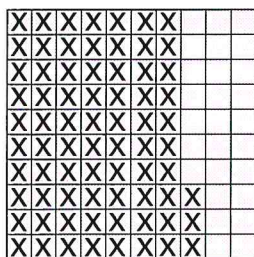


f $1.15 - 0.52 =$

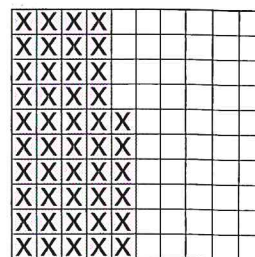


Practice 2

Write an expression to match the models. Write a **subtraction problem**, and then find the result:



a $0.85 - 0.30 =$



b $0.60 - 0.30 =$

Practice 3

Use the **place value charts** to find the difference:

Example: $24.8 - 7.245 = 17.555$

Whole Numbers			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
	2	4					.	8
		7	.	2	4	5
	1	7	.	5	5	5

Whole Numbers			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
			.			
			.			

b $9.245 - 0.86 =$

Whole Numbers			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
			.			
			.			
			.			

c $8.027 - 0.8 =$

Whole Numbers			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
			.			
			.			

d $142.37 - 4.08 =$

Whole Numbers			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
			.			
			.			

e $250.9 - 9.245 =$

Whole Numbers			Decimal Point	Decimals		
Ones				Tenths	Hundredths	Thousandths
H	T	O				
			.			
			.			

Subtracting Decimals

Example: $48.3 - 5.245$

Vertically:

Arrange the digits so that the decimal point is under the decimal point, the **Ones** under the **Ones**, the **Hundreds** under the **Hundreds**, and so on. Then, subtract.

Empty spaces can be filled with zeros.

Horizontally: $48.300 - 5.245 = 43.055$

$$\begin{array}{r}
 \begin{array}{ccccccc}
 & & & 9 & & & \\
 & & & 2 & 10 & 10 & \\
 48 & . & 300 & & & & \\
 - & 5 & . & 245 & & & \\
 \hline
 43 & . & 055 & & & &
 \end{array}
 \end{array}$$

Practice 4 Subtract:

a 75.48
 $- 7.082$

b 30
 $- 5.17$

c 102.002
 $- 12.347$

d $82.82 - 45 =$

e $58 - 8.079 =$

Practice 5 Complete, as in the example:

Example: 75 Thousandths - 30 Hundredths = 45 Thousandths.

$$\begin{array}{rclcl}
 75 \text{ Thousandths} & + & 30 \text{ Thousandths} & = & 45 \text{ Thousandths} \\
 (0.075 & + & 0.030 & = & 0.045)
 \end{array}$$

- a 45 Thousandths – 12 Thousandths = Thousandths
- b 5 Hundredths – 13 Thousandths = Thousandths
- c 4 Tenths – 75 Thousandths = Thousandths
- d 214 Thousandths – 18 Hundredths = Thousandths

Estimating Decimal Differences

1 Benchmark Decimals Strategy:

Example: Estimate the following using **benchmark decimals**:

a $0.65 - 0.456 \rightarrow 0.5 - 0.5 = 0$

0.65 is close to 0.5.

0.456 is close to 0.5.

b $0.98 - 0.001 \rightarrow 1 - 0 = 1$

0.98 is close to 1.

0.001 is close to 0.

Practice 6 Estimate the difference of the following decimals:

a $0.89 - 0.533 \rightarrow$ Estimate: – =

b $0.42 - 0.03 \rightarrow$ Estimate: – =

c $0.612 - 0.021 \rightarrow$ Estimate: – =

d $0.55 - 0.482 \rightarrow$ Estimate: – =

2 Rounding Strategy:

Example: Estimate the difference using the rounding strategy:

$58.538 - 23.845$

(To the nearest **Hundredth**)

$= 58.54 - 23.85 = 34.69$

Practice 7 Estimate the difference of the following decimals: (Use the rounding strategy.)

a $8.34 - 3.43 \rightarrow$ Estimate: – = (To the nearest **0.1**)

b $345.1 - 80.91 \rightarrow$ Estimate: – = (To the nearest **One**)

c $7.21 - 4.56 \rightarrow$ Estimate: – = (To the nearest **Tenth**)

d $0.981 - 0.089 \rightarrow$ Estimate: – = (To the nearest **0.01**)

Practice 8

The Tahya Misr Bridge, which connects eastern Cairo to western Cairo across the Nile River, is **67.3** meters wide. The Jiaxing-Shaoxing Sea Bridge in Japan is less in width than the Tahya Misr Bridge by **11.7** meters. How wide is the Jiaxing-Shaoxing Sea Bridge?

Practice 9

Rashad and his father went fishing. Each of them caught a giant fish; the mass of the first fish is **5.25** kilograms, and the mass of the other fish is **6.8** kilograms. What is the mass of the two fish together?

Practice 10

The length of the Tahya Misr Bridge is **16.7** km. If Ramy travels along the length of the Tahya Misr Bridge and then returns this distance again, how many kilometers in total does he travel?

Quiz?

10

1 Choose the correct answer:

- a $25.82 - 12 =$ (25.70 or 24.62 or 13.82 or 15.8)
- b $36.36 - 6.3 =$ (30.06 or 35.73 or 42.66 or 30.33)
- c 45 Hundredths - 12 Thousandths = Thousandths
(33 or 57 or 438 or 462)
- d Estimate: $8.34 - 3.43 \rightarrow$ (Benchmark) (5 or 5.5 or 4 or 4.5)

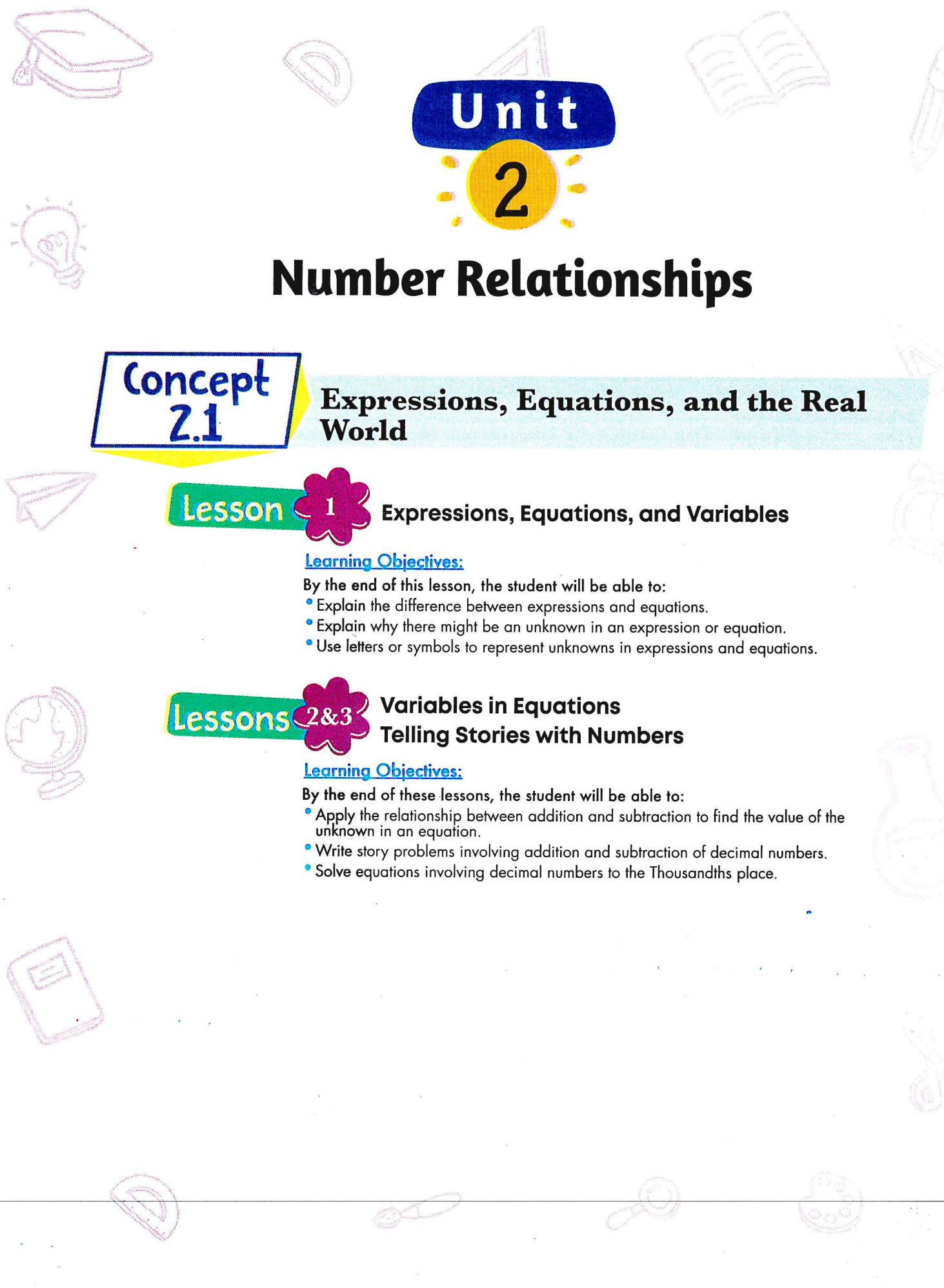
2 Subtract:

a
$$\begin{array}{r} 326.578 \\ - 122.244 \\ \hline \end{array}$$

b
$$\begin{array}{r} 68.367 \\ - 2.455 \\ \hline \end{array}$$

c
$$\begin{array}{r} 84 \\ - 12.592 \\ \hline \end{array}$$

3 A road is **675.5 km** long. A train has traveled **239.45 km** along it. What is the remaining distance on the road?



Unit

2

Number Relationships

Concept 2.1

Expressions, Equations, and the Real World

Lesson

1

Expressions, Equations, and Variables

Learning Objectives:

By the end of this lesson, the student will be able to:

- Explain the difference between expressions and equations.
- Explain why there might be an unknown in an expression or equation.
- Use letters or symbols to represent unknowns in expressions and equations.

Lessons

2&3

Variables in Equations

Telling Stories with Numbers

Learning Objectives:

By the end of these lessons, the student will be able to:

- Apply the relationship between addition and subtraction to find the value of the unknown in an equation.
- Write story problems involving addition and subtraction of decimal numbers.
- Solve equations involving decimal numbers to the Thousandths place.

1

Lesson

Expressions, Equations, and Variables

Remember

Variable	Expression	Equation
It's a letter or symbol that represents the unknown value in an equation.	It's a set of fixed numbers and variables that line up next to each other.	It's a mathematical sentence that includes an equal relationship between two mathematical sentences.
Such as: $x, y, z, \dots$	Such as: $x + 5, 3xy$	Such as: $5 + x = 9, y = 5 \times 3$

Practice 1

Put a tick (✓) to classify the following mathematical sentences into “Equation”, “Mathematical Expression”, or “Other”:

		Equation	Mathematical Expression	Other
a	$4.7 + 3.6 = m$			
b	$6.4 + 3.2 + 8$			
c	$56 - x = 47.5$			
d	$3.4 + a$			
e	Aya ran 8 km last week.			
f	$3.5 + 2.456$ $= 2.5 + 3.456$			
g	$37.125 - 13.7$			
h	Amir had 3.5 kg of apples.			

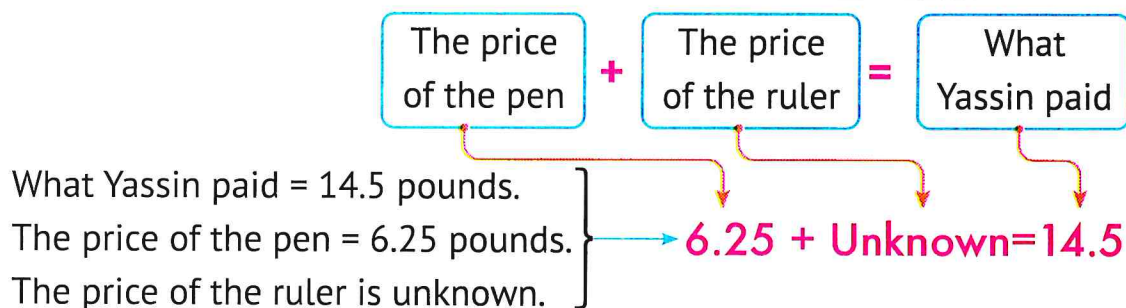
Using Letters or Symbols to Represent Unknown Values in Mathematical Expressions and Equations

Example:

Yassin bought a pen and a ruler. He paid 14.5 pounds for them. If the price of the pen is 6.25 pounds, what is the price of the ruler?

Write an equation to represent the price of the ruler.

The previous example can be expressed as follows:



- Replace the word "unknown" with one of the letters (a variable) "y".
- **So, the equation that represents the price of the ruler is:**

$$6.25 + y = 14.5 \quad \text{or} \quad y = 14.5 - 6.25$$

Practice 2

Read the following story problems. Make an equation for each problem:

- ③ Ahmed had 25.15 pounds, and he bought a toy for 14.5 pounds. How much money is left with Ahmed?

- ⑤ A class in a school has 45 students. 28 of them are girls. How many boys are there in this class?

- c A farm had 4,200 chickens. 3,350 chickens were sold in a week.
How many chickens are left on the farm?

- d Ahmed bought a car for 90,990 pounds, and bought a house for his family for 750,250 pounds.
How much did Ahmed spend to buy the car and the house?

Quiz?

10

1 Find the result:

- a $2.8 + 0.2 = b$ is a/an (equation or mathematical expression or other)
b $9.7 + n$ is a/an (equation or mathematical expression or other)
c Ali has 75 LE is a/an (equation or mathematical expression or other)

2 Mai has 38 LE, and she spent 23 LE.

How much money does she have now? (Make an equation to solve)

3 There is a group of 12 children; 7 of them are girls.

What is the number of boys in this group?

(Make an equation to solve)

2&3 Lessons

Variables in Equations Telling Stories with Numbers

Determining the Value of the Unknown

You can use mental math to determine the value of the (unknown) variable in the equation.

Example: Find the value of (**a**) in each of the following:

$$\begin{array}{l} \overset{-}{\curvearrowright} \\ 0.5 + a = 0.9 \\ a = 0.9 - 0.5 \\ a = 0.4 \end{array}$$

$$\begin{array}{l} \overset{-}{\curvearrowright} \\ a + 0.2 = 1.7 \\ a = 1.7 - 0.2 \\ a = 1.5 \end{array}$$

$$\begin{array}{l} \overset{-}{\curvearrowright} \\ 8.5 - a = 2.3 \\ a = 8.5 - 2.3 \\ a = 6.2 \end{array}$$

$$\begin{array}{l} \overset{+}{\curvearrowright} \\ a - 2.4 = 3.5 \\ a = 2.4 + 3.5 \\ a = 5.9 \end{array}$$

Practice 1 Use mental math to estimate the equations, and then solve them:

a $8.235 + p = 10.224$

$p = \dots\dots\dots$

$p = \dots\dots\dots$

b $t - 2.445 = 0.26$

$t = \dots\dots\dots$

$t = \dots\dots\dots$

c $6.82 - h = 1.023$

$h = \dots\dots\dots$

$h = \dots\dots\dots$

d $v + 42.809 = 100.01$

$v = \dots\dots\dots$

$v = \dots\dots\dots$

e $5.52 + 2.041 + m = 9.271$

$m = \dots\dots\dots$

$m = \dots\dots\dots$

f $2.377 + 3.1 = 1.52 + a$

$a = \dots\dots\dots$

$a = \dots\dots\dots$

Example:

Write a story problem for the following equation, and then solve it:

$$53.5 + m = 92.7$$

Answer:

Bassem takes the bus from Cairo to Tanta. The distance is 92.7 km. The bus stops 53.5 km away in the city of Banha to take more passengers. How far is Banha from Tanta?

$$53.5 + m = 92.7 \quad \text{Then} \quad m = 92.7 - 53.5$$

$$m = 39.2$$

The distance is 39.2 km.

Practice 2

Write a **story problem** representing each equation, and then solve it:

a $x + 2.75 = 12.5$

.....

.....

.....

.....

b $34.750 - s = 15.25$

.....

.....

.....

.....



1 Complete the following:

a If $3.7 + m = 5.2$, then $m =$

$m =$

b If $h - 3.2 = 4.89$, then $h =$

$h =$

c If $9.9 - a = 3.6$, then $a =$

$a =$

2 Choose the correct answer:

a If $2.1 + 1.6 + c = 5$, then $c =$

(1.7 or 0.7 or 8.7 or 1.3)

b If $6.5 - 2.4 = n + 3$, then $n =$

(7.1 or 1.1 or 8.9 or 11.9)

3 Write a story problem representing the equation ($a - 15 = 12$).
Then, solve it.

.....

.....

.....

Unit

2

Number Relationships

Concept 2.2

Factors and Multiples

Lesson

4

Prime Factorization

Learning Objective:

By the end of this lesson, the student will be able to:

- Use a factor tree to identify the prime factors of a given number.

Lesson

5

Greatest Common Factors (GCF)

Learning Objectives:

By the end of this lesson, the student will be able to:

- Use factor trees to identify common factors of two whole numbers.
- Use factor trees to identify the greatest common factor of two whole numbers.

Lessons

6&7

Identifying Multiples Least Common Multiple (LCM)

Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain the meaning of multiples.
- Identify common multiples of two whole numbers up to 12.
- Explain the meaning of least common multiple.
- Identify the least common multiple of two whole numbers up to 12.

Lesson

8

Factors or Multiples?

Learning Objectives:

By the end of this lesson, the student will be able to:

- Explain the difference between factors and multiples.
- Identify the greatest common factor and least common multiple of two given numbers.

4

Lesson

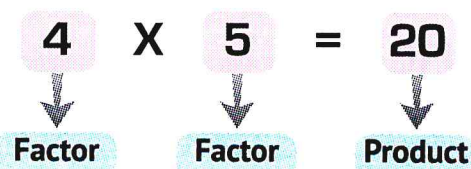
Prime Factorization

Remember

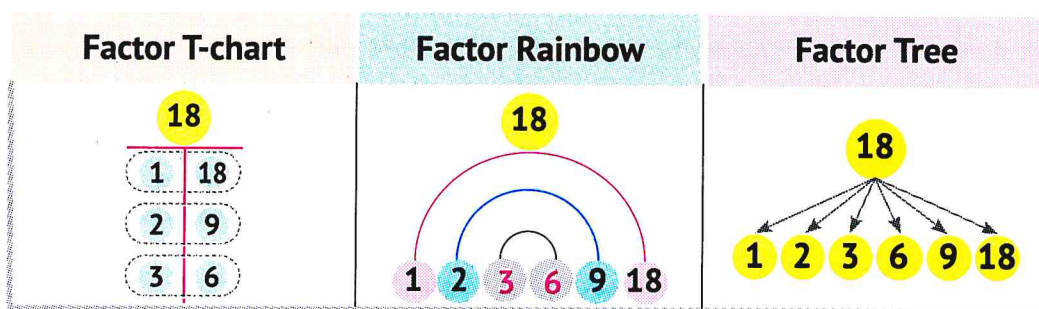
Factors

Factors are the numbers that are multiplied to form a **product**.

Or the factor of a number divides the number **equally** without a remainder.



Methods for Finding the Factors of a Number



NOTES

- **2** is a factor of all even numbers whose Ones digit is 0, 2, 4, 6, or 8.
- **3** is a factor of numbers whose sum of digits is divisible by 3 without a remainder.
- **5** is a factor of numbers whose Ones digit is 0 or 5.
- **Prime number:** It is a number greater than one and has only **two** factors, one and the number itself.
- **All prime numbers are odd, except 2.**
- The smallest prime number is **2**.

- The only **even prime** number is **2**.
- The smallest odd prime number is **3**.
- **1** is neither a prime number nor a composite number.
- **Prime numbers less than 100** are
2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97
- Any number is a factor and a multiple of itself.

Prime Factors

Prime Factorization:

It means writing the composite number as the product of prime numbers.

Examples: $8 = 2 \times 2 \times 2$, $12 = 3 \times 2 \times 2$, $15 = 3 \times 5$

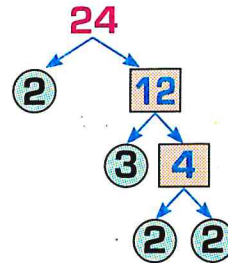
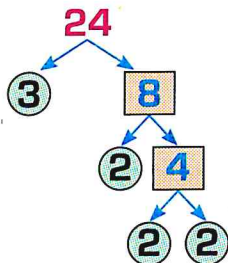
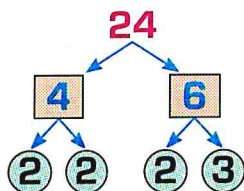
Prime Factorization Using a Factor Tree

Example: Factorize **24** into its prime factors:

- ① Choose two numbers whose **product** is 24 (1 should not be used).
- ② Circle the prime numbers and leave them, then continue factorizing the composite numbers.
- ③ Stop when all numbers become **prime numbers**.

Note that: All of the following are true, and we get the same result:

$$24 = 2 \times 2 \times 2 \times 3$$



Practice

Factorize each number into its prime factors using the factor tree:

a 16

16 =

b 20

20 =

c 36

36 =

d 48

48 =

Quiz?

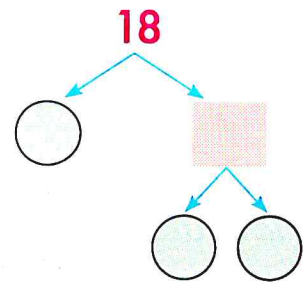
10

1 Complete the following:

- a The smallest prime number is
- b The smallest odd prime number is
- c The prime factors of 30 are, and

2 Complete the following diagram:

18 = x x



3 Choose the correct answer:

- a The number whose prime factors are 2, 2, and 3 is
(7 or 12 or 10 or 6)
- b The number whose prime factors are 3, 5, and 2 is
(10 or 17 or 13 or 30)

5 Lesson

Greatest Common Factors (GCF)

NOTES

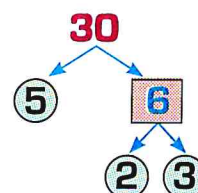
Methods for Factorizing Numbers into their Prime Factors

Example: Factorize 30 into its prime factors:

① Factor Tree:

- Choose two numbers whose **product** is 30.
- Complete the factorization as in the previous lesson.

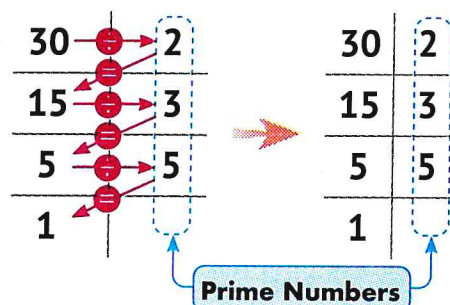
$$30 = 2 \times 3 \times 5$$



② Repeated Division:

- Divide by one of the **prime factors** of a number.
- Keep dividing by another prime factors.
- Stop when the quotient becomes 1.

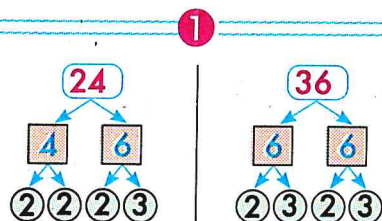
$$30 = 2 \times 3 \times 5$$



Determining the Greatest Common Factor of Two Numbers Using Prime Factors

Example: Find the GCF of 24 and 36.

- Factorize both numbers into their **prime factors**.



- Write the prime factors of both numbers so that the similar factors are on top of each other.

②

$$24 = 2 \times 2 \times 2 \times 3$$

$$36 = 2 \times 2 \times 3 \times 3$$

GCF =

- For every two same factors, we get a factor.
- The product of these factors is the **greatest common factor**.

③

$$24 = 2 \times 2 \times 2 \times 3$$

$$36 = 2 \times 2 \times 3 \times 3$$

$$\text{GCF} = 2 \times 2 \times 3 = 12$$

So, the GCF of 24 and 36 is 12.

Practice 1 Find the **GCF** of each of the following:**a** 28 and 42

28 = _____

42 = _____

GCF = _____ = _____

b 18 and 27

18 = _____

27 = _____

GCF = _____ = _____

c 12 and 20

12 = _____

20 = _____

GCF = _____ = _____

d 16 and 32

16 = _____

32 = _____

GCF = _____ = _____

Practice 2

There are **15** boys and **20** girls in a classroom. The teacher wants to divide the class into the greatest equal groups so that the numbers of boys and girls are equal in all groups. Use the **greatest common factor**.

.....

.....

.....

Quiz?

10

1 Choose the correct answer:

- a** The **GCF** of 3 and 6 is (3 or 6 or 18 or 2)
- b** The **GCF** of 4 and 6 is (6 or 10 or 2 or 24)
- c** is a factor of all numbers. (1 or 0 or 100 or 2)

2 Find the **GCF** of the two numbers
12 and 18.

12 =

18 =

GCF =

--	--

3 There are **20** red apples and **15** green apples. What is the greatest number of groups you can make so that each group has the same number of red apples and the same number of green apples?

--	--

6 & 7 Lessons

Identifying Multiples Least Common Multiple (LCM)

Remember

Multiple of a number:

It is the **product** we get when we multiply a certain number by another number.

How to Find the Multiples of a Number

Count by Jumping
on the Number Line

Use the Hundred Chart

Use Multiplication Facts

Note that:

- Zero (0) is the **common multiple** of all numbers.
- All numbers are multiples of **1**.
- Each number is a multiple of **itself**.
- The product of any two numbers is a **common multiple** of them.
- Multiples of numbers are **infinite**.

For example: $35 = 5 \times 7$, so **35** is a common multiple of 7 and 5.

Example: Find the **common multiples** of 3 and 4.

- The multiples of 3 are: 0, 3, 6, 9, 12, 15, 18, 21, 24,
- The multiples of 4 are: 0, 4, 8, 12, 16, 20, 24, 28, 32,
- Common multiples are: 0, 12, 24, ... (Other answers are available)

Example: Find the **common multiples** of 12 and 8.

- The multiples of 12 are: 0, 12, 24, 36, 48, ...
- The multiples of 8 are: 0, 8, 16, 24, 32, 40, 48, ...
- Common multiples are: 0, 24, 48, ... (Other answers are available)

Practice 1

- a List the first 10 multiples of 2:
- b List the first 5 multiples of 5:
- c List the common multiples of 2 and 5 from those you mentioned:

Practice 2

- a List the first 10 multiples of 3:
- b List the first 6 multiples of 6:
- c List the first 3 multiples of 9:
- d List the common multiples of the numbers 3, 6, and 9 from those you mentioned:

Least Common Multiple (LCM)

It is the **smallest common multiple** of two or more numbers except zero (0).

Example: Find the **LCM** of 6 and 8:

- The multiples of 6 are: 0, 6, 12, 18, 24, 30, 36, 42, 48,
- The multiples of 8 are: 0, 8, 16, 24, 32, 40, 48, 56, 64,
- Common multiples are: 0, 24, 48, ... (Other answers are available)

The least common multiple of the two numbers (**LCM**) is 24.

Practice 3

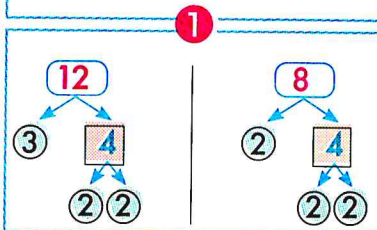
List the multiples of 2 and 3 up to 20, then find the **LCM**:

- a The multiples of 2 are:
- b The multiples of 3 are:
- c Common multiples are:
- d The **LCM** of 2 and 3 is:

Determining the Least Common Multiple of Two Numbers Using Prime Factors

Example: Find the **LCM** of 12 and 8.

- Factorize the two numbers into their **prime factors**.



- Write the prime factors of the two numbers so that the similar factors are on top of each other.

2

$$12 = 2 \times 2 \times 3$$

$$8 = 2 \times 2 \times 2$$

LCM =

- For every two same factors, we get a common factor.
- We also write dissimilar factors.
- The product of these factors is the least common multiple.

3

$$12 = 2 \times 2 \times 3$$

$$8 = 2 \times 2 \times 2$$

LCM = 2 x 2 x 3 x 2 = 24

So, the **LCM** of 8 and 12 is **24**.

Example:

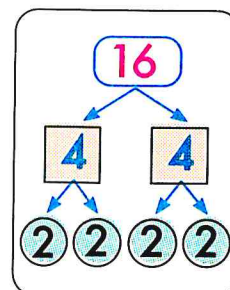
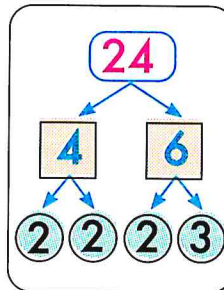
Find the **GCF** and **LCM** of 24 and 16

$$24 = 2 \times 2 \times 2 \times 3$$

$$16 = 2 \times 2 \times 2 \times 2$$

GCF = 2 x 2 x 2 = 8

LCM = 2 x 2 x 2 x 3 x 2 = 48



Practice 4

Find the **GCF** and **LCM** of each of the following:

a 6 and 9

6 = _____

9 = _____

GCF = _____

LCM = _____

b 10 and 15

10 = _____

15 = _____

GCF = _____

LCM = _____

c 4 and 8

4 = _____

8 = _____

GCF = _____

LCM = _____

d 12 and 9

12 = _____

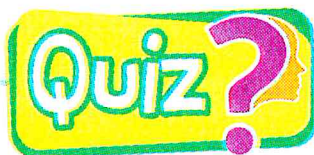
9 = _____

GCF = _____

LCM = _____

NOTES

- The least common multiple of two prime numbers is their **product**.
- If one of the two numbers is a factor of the other number, then the larger number is the **least common multiple** of the two numbers.



1 Choose the correct answer:

- a The LCM of 4 and 8 is (4 or 8 or 12 or 2)
- b The LCM of 2 and 5 is (10 or 5 or 7 or 20)
- c is a multiple of all numbers. (1 or 0 or 100 or 2)

2 Find the GCF and LCM of the two numbers 6 and 8.

6 =

8 =

GCF =

LCM =

3 Find the GCF and LCM of the two numbers (6 x 5) and (3 x 14).

6 x 5 =

3 x 14 =

GCF =

LCM =

8

Lesson

Factors or Multiples?

How to Find the GCF and LCM Easily

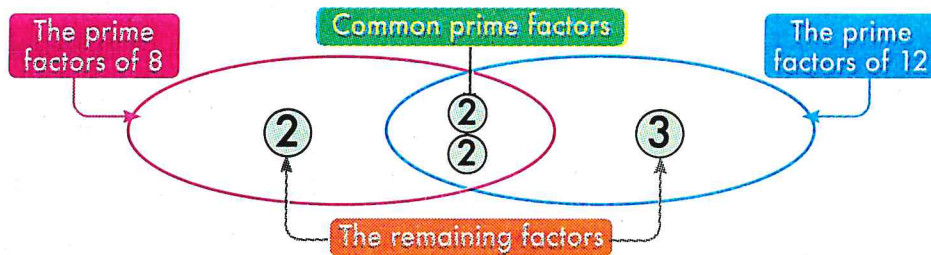
Example:

Find the **GCF** and **LCM** of 8 and 12.

1st Step Find the prime factors of 8 and 12.

$$8 = 2 \times 2 \times 2 \quad 12 = 2 \times 2 \times 3$$

2nd Step Draw the following diagram.



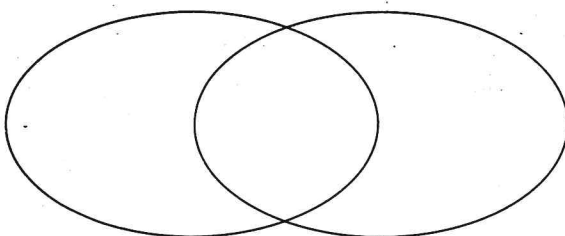
3rd Step The **GCF** is the product of the common factors. **GCF** = $2 \times 2 = 4$
 The **LCM** is the product of all factors. **LCM** = $2 \times 2 \times 2 \times 3 = 24$

Practice 1 Find the **GCF** and **LCM** of:

a 12 and 20

$$12 = \dots\dots\dots$$

$$20 = \dots\dots\dots$$



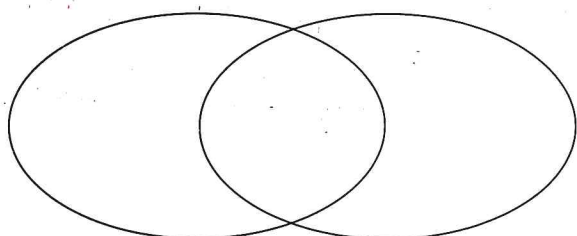
$$\text{GCF} = \dots\dots\dots$$

$$\text{LCM} = \dots\dots\dots$$

b 16 and 24

$$16 = \dots\dots\dots$$

$$24 = \dots\dots\dots$$



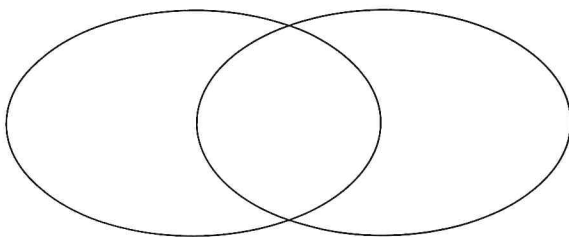
$$\text{GCF} = \dots\dots\dots$$

$$\text{LCM} = \dots\dots\dots$$

c 10 and 45

10 = _____

45 = _____



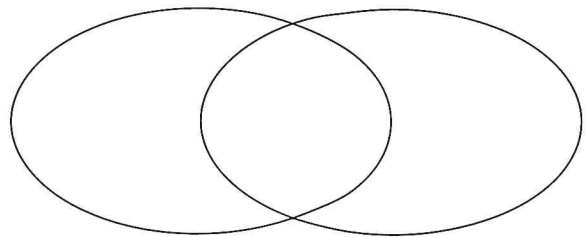
GCF = _____

LCM = _____

d 18 and 27

18 = _____

27 = _____



GCF = _____

LCM = _____

The Difference Between Factors and Multiples

Factors

Factors of a number are all pairs whose products are multiplied together to give this number.

Multiples

Multiples of a number are the set of numbers, that appears when jumping by the same number, starting from zero.

NOTE

Factors

- Not all numbers have the same number of factors.
- When a number is divided evenly, it is divided into factors.
- One of the factors can be obtained by dividing the multiple by the other factor.
- 1 is the factor of all numbers.

Multiples

- All numbers have an **infinite** number of **multiples**.
- The **multiplier** is the multiplying of two factors.
- 0 is the multiple of all numbers.

Story Problems

GCF

Usually involves

- Breaking
- Cutting things into pieces
- Comparing things into groups
- Distributing Equally
- Dividing

LCM

Factors of a number involve

- Repetition
- Two things happening at the same time
- Multiple items

Note the following two examples:

Example:

Omnia has **two** strips of cloth. One is **35** cm wide, and the other is **75** cm wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips?

(In this example, Omnia wants to divide the cloth into pieces, so we use the GCF in the solution.)

Solution: $35 = 5 \times 7$
 $75 = 5 \times 5 \times 3$
GCF = 5

The largest width of the strips is 5 cm.

Example:

Mohamed trains to walk every **7** days and lifts weights every **4** days, he did both today. After how many days will Mohamed walk and lift weights on the same day?

(In this example, there is a repetition of what Mohamed does, so we use the LCM in the solution.)

Solution: Multiples of 7: 0, 7, 14, 21, 28, 35, 42,
 Multiples of 4: 0, 4, 8, 12, 16, 20, 24, 28, 32
LCM = 28

Mohamed will do both exercises after 28 days.

Practice 2

Omar exercises every **12** days. Rana exercises every **8** days. Both friends exercised together today. How many days will it be until they exercise together again?

.....

.....

.....

.....

Practice 3 Malak baked 30 servings of cake and 48 servings of baklava for her family. She wants to divide the desserts into containers so that each person receives the same number of servings. How many containers will she need?

Quiz?

10

1 Choose the correct answer:

- a If $3 \times 5 = 15$, then 15 is a of 3. (factor or multiple or double or half)
- b If $8 \times 4 = 32$, then 8 is a of 32. (factor or multiple or double or half)
- c is a factor of all even numbers. (1 or 0 or 2 or 3)
- d The GCF of 5 and 9 is (5 or 9 or 1 or 45)
- e The LCM of 2 and 7 is (2 or 7 or 14 or 1)

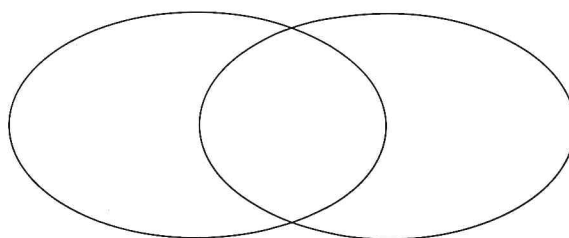
2 Find the GCF and LCM of the two numbers 8 and 10.

8 =

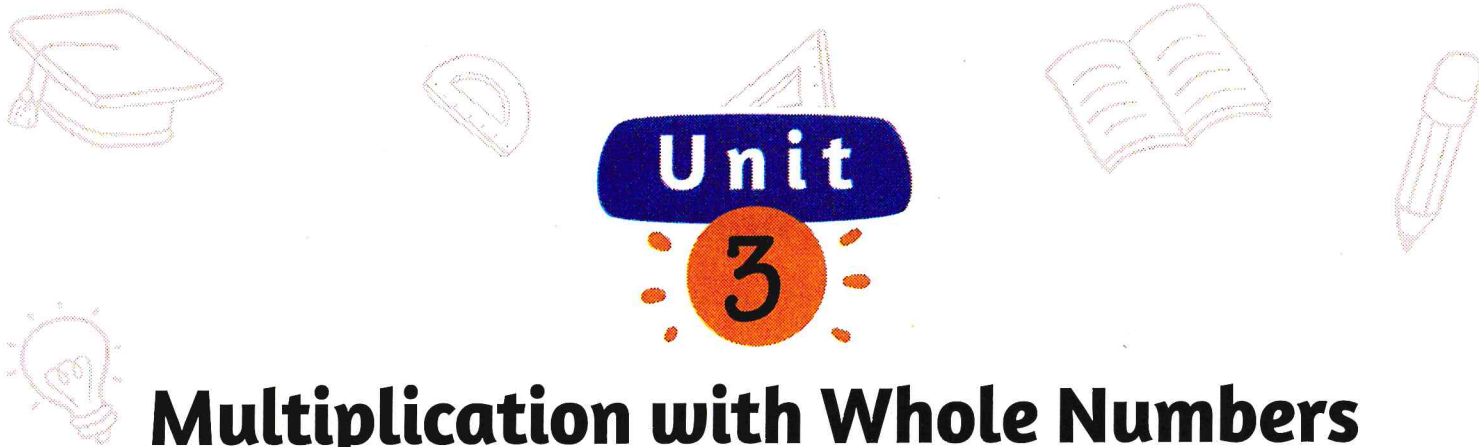
10 =

GCF =

LCM =



3 Shaima waters one of her plants every 8 days and the other every 10 days. If she waters them today, when is the next time she should water both plants together?



Unit

3

Multiplication with Whole Numbers



Concept 3.1

Models for Multiplication



Lesson

**1**

Using the Area Model to Multiply

Learning Objective:

By the end of this lesson, the student will be able to:

- Multiply using the area model.



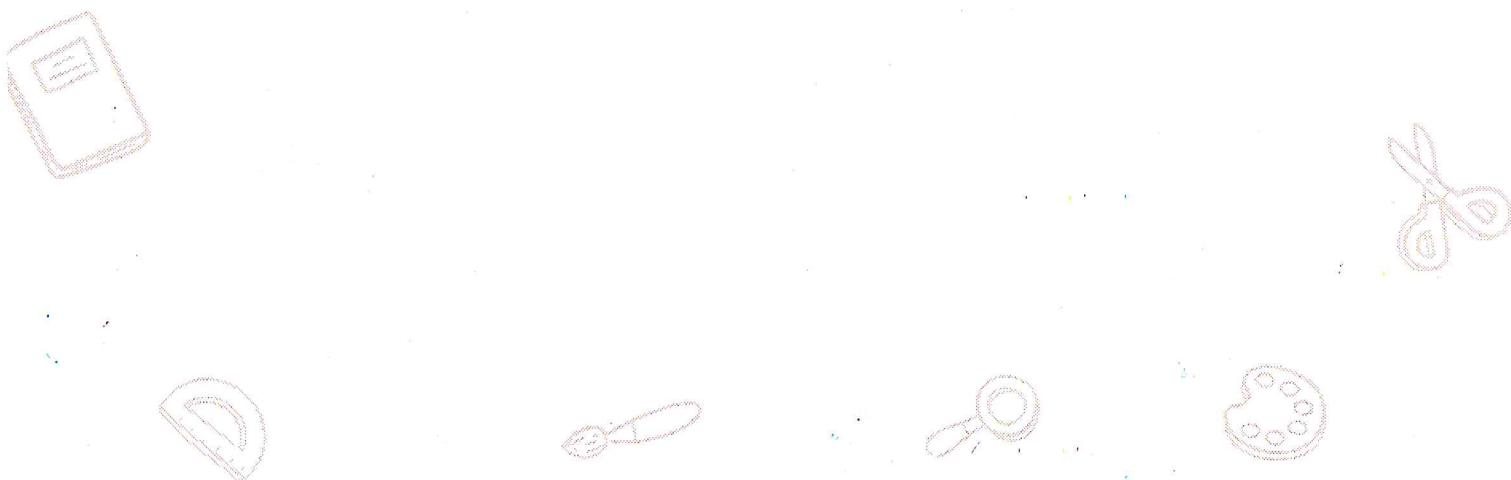
Lesson

**2**

The Distributive Property of Multiplication

Learning Objective:

By the end of this lesson, the student will be able to:

- Explain the relationship between the area model of multiplication and the Distributive Property of Multiplication.
- 

1

Lesson

Using the Area Model to Multiply

Using the Rectangle Area Model to Multiply a Two-Digit Number by a Two-Digit Number

Example:

Multiply: 36×42

- Create the following rectangle.
- **Expand** the first number:
 $36 = 30 + 6$
- Then, the second number:
 $42 = 40 + 2$
- **Multiply** the **rows** and **columns** as shown.
- **Add** the **products** of the multiplication.

X		

		36	
		30	6
42	40		
	2		

		36	
		30	6
42	40	$40 \times 30 = 1,200$	$40 \times 6 = 240$
	2	$2 \times 30 = 60$	$2 \times 6 = 12$

So, $36 \times 42 = 1,200 + 240 + 60 + 12 = 1,512$

Example:

Multiply: 69×427

So: 69×427

$$\begin{aligned}
 &= 24,000 + 1,200 + 420 \\
 &+ 3,600 + 180 + 63 \\
 &= 29,463
 \end{aligned}$$

		427		
		400	20	7
69	60	24,000	1,200	420
	9	3,600	180	63

Example:

Multiply: 45×308

So: 45×308

$$\begin{aligned}
 &= 12,000 + 320 + 1,500 + 40 \\
 &= 13,860
 \end{aligned}$$

		308	
		300	8
45	40	12,000	320
	5	1,500	40

Practice 1 Multiply using the **area model**:

a $4 \times 247 =$

--	--	--

b $62 \times 36 =$

c $84 \times 273 =$

d $37 \times 602 =$

Practice 2 Write the **multiplication problem** that expresses each model, then solve it:

a $8 \times 527 =$

	500	20	7
8			

b $59 \times 28 =$

	20	8
50		
9		

c $43 \times 856 =$

	800	50	6
40			
3			

d $98 \times 603 =$

	600	3
90		
8		

Practice 3 Answer the following:

- a Ali walks 6 kilometers each day. If he walked 187 days a year, how many kilometers would he walk?

.....

.....

- b What if Ali wants to drive 60 kilometers each day? How many kilometers would he drive in 105 days?

.....

.....



10

- 1 Use the area model to find the product of 23×65 :

.....

.....

.....

.....	
.....	

- 2 Complete the area model to evaluate:

..... $\times$

= + + +

=

	500	9
20		
8		

- 3 A family consumes 5 eggs every day. How many eggs does the family consume in 49 days?

.....

.....

2 Lesson

The Distributive Property of Multiplication

Multiplication Strategies

The Distributive Property of Multiplication

Example: 45×38

$$\begin{aligned}
 45 \times 38 &= (40 + 5) \times (30 + 8) \\
 &= (40 \times 30) + (40 \times 8) + (5 \times 30) + (5 \times 8) \\
 &= 1,200 + 320 + 150 + 40 = \mathbf{1,710}
 \end{aligned}$$

Example: 69×427

$$\begin{aligned}
 69 \times 427 &= (60 + 9) \times (400 + 20 + 7) \\
 &= (60 \times 400) + (60 \times 20) + (60 \times 7) + (9 \times 400) + (9 \times 20) + (9 \times 7) \\
 &= 24,000 + 1,200 + 420 + 3,600 + 180 + 63 \\
 &= \mathbf{29,463}
 \end{aligned}$$

Example: 82×304

$$\begin{aligned}
 82 \times 304 &= (80 + 2) \times (300 + 4) \\
 &= (80 \times 300) + (80 \times 4) + (2 \times 300) + (2 \times 4) \\
 &= 24,000 + 320 + 600 + 8 = \mathbf{24,928}
 \end{aligned}$$

Practice 1 Complete the following:

a $7 \times 63 = 7 \times (\dots + \dots)$
 $= (7 \times \dots) + (7 \times \dots) = \dots + \dots = \dots$

b $9 \times 208 = 9 \times (\dots + \dots) = (9 \times \dots) + (9 \times \dots)$
 $= \dots + \dots = \dots$

c $24 \times 38 = (\dots + \dots) \times (\dots + \dots)$
 $= (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots + \dots + \dots = \dots$

d $82 \times 107 = (\dots + \dots) \times (\dots + \dots)$
 $= (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots + \dots + \dots = \dots$

e $62 \times 142 = (\dots + \dots) \times (\dots + \dots + \dots)$
 $= (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $+ (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots + \dots + \dots + \dots + \dots$
 $= \dots$

f $43 \times 217 = (\dots + \dots) \times (\dots + \dots + \dots)$
 $= (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $+ (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots + \dots + \dots + \dots + \dots$
 $= \dots$

Flexible Numbers

Example: Note that when multiplying the two numbers: 83 and 14, we can decompose 83 and 14 by using **more than one** method.

a $83 \times 14 = (80 + 3) \times (10 + 4)$

	10	4
80	800	320
3	30	12

$800 + 320 + 30 + 12 = 1,162$

b $83 \times 14 = (40 + 40 + 3) \times (10 + 4)$

	10	4
40	400	160
40	400	160
3	30	12

$400 + 160 + 400 + 160 + 30 + 12 = 1,162$

c $83 \times 14 = (80 + 3) \times (7 + 7)$

	7	7
80	560	560
3	21	21

$560 + 560 + 21 + 21 = 1,162$

d $83 \times 14 = (50 + 30 + 3) \times (7 + 7)$

	7	7
50	350	350
30	210	210
3	21	21

$350 + 350 + 210 + 210 + 21 + 21 = 1,162$

From the above, we find that all methods of decomposing numbers lead to the same result.

Practice 2

Use the **area model** to find the result of (74×12) .

Decompose the numbers in three different ways:

.....

.....

.....

.....

.....

.....

The Relationship Between the Area Model of Multiplication and the Distributive Property of Multiplication

Note the following examples:

a 8×23

8	20	3
	160	24

$$8 \times 23 = (8 \times 20) + (8 \times 3)$$

$$= 160 + 24 = 184$$

b 3×513

3	500	10	3
	1,500	30	9

$$3 \times 513 = (3 \times 500) + (3 \times 10) + (3 \times 3)$$

$$= 1,500 + 30 + 9 = 1,539$$

c 37×64

30	60	4
7	1,800	120
	420	28

$$37 \times 64 = (30 \times 60) + (30 \times 4) + (7 \times 60) + (7 \times 4)$$

$$= 1,800 + 120 + 420 + 28 = 2,368$$

Practice 3 Complete using the area model:

a $\dots \times \dots = \dots \times (\dots + \dots)$
 $= (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots = \dots$

8	30	7
	240	56

b $\dots \times \dots = \dots \times (\dots + \dots + \dots)$
 $= (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots + \dots = \dots$

5	200	60	4
	1,000	300	20

c $\dots \times \dots = (\dots + \dots) \times (\dots + \dots)$
 $= (\dots \times \dots) + (\dots \times \dots)$
 $+ (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots + \dots + \dots = \dots$

20	70	3
6	1,400	60
	420	18

Practice 4 Complete the **area model** and find the product:

a $(4 \times 50) + (4 \times 3) + (20 \times 50) + (20 \times 3)$

= X =

b $(20 \times 40) + (20 \times 7) + (8 \times 40) + (8 \times 7)$

= X =



10

1 Choose the correct answer:

a $(20 \times 30) + (20 \times 7) + (4 \times 30) + (4 \times 7) = \dots\dots\dots$

(23 x 47 or 20 x 34 or 27 x 30 or 24 x 37)

b $807 \times 62 = (800 \times 60) + (800 \times 2) + (7 \times 60) + (\dots\dots\dots)$

(7 x 2 or 8 x 6 or 7 x 6 or 8 x 2)

2 Complete the **area model** to find the product:

$(30 \times 20) + (30 \times 7) + (5 \times 20) + (5 \times 7)$

..... X =

3 Complete the **Distributive Property of Multiplication** to find the product:

$(\dots\dots \times \dots\dots) + (\dots\dots \times \dots\dots) + (\dots\dots \times \dots\dots)$

$+ (\dots\dots \times \dots\dots) + (\dots\dots \times \dots\dots) + (\dots\dots \times \dots\dots)$

=

40

3

600	20	7

Then, X =



Unit

3

Multiplication with Whole Numbers

Concept 3.2

Multiplying 4-Digit Numbers by 2-Digit Numbers

Lessons

3-5

Multiplying by a 2-Digit Number Using Algorithm Multiplying Multi-Digit Numbers Multiplication Problems in the Real World

Learning Objectives:

By the end of these lessons, the student will be able to:

- Multiply using the standard algorithm.
- Multiply 4-digit numbers by 2-digit numbers using the standard algorithm.
- Use estimation to check the reasonableness of his/her answers.
- Solve multistep story problems involving multiplication.

3.5 Lessons

Multiplying by a 2-Digit Number Using Algorithm – Multiplying Multi-Digit Numbers Multiplication Problems in the Real World

Standard Algorithm for Multiplication

Example: Multiply: 45×23

1 Multiply the **Ones** digit (**3**) by **47**.

$$\begin{array}{r} 47 \\ \times 23 \\ \hline 141 \end{array}$$

$$3 \times 47 = 141$$

2 Multiply the **Tens** digit (**2**) by **47**, while keeping the **Ones** place value as zero (**0**).

$$\begin{array}{r} 47 \\ \times 23 \\ \hline 141 \\ + 940 \\ \hline \end{array}$$

$$20 \times 47 = 940$$

3 Add the products.

$$\begin{array}{r} 47 \\ \times 23 \\ \hline 141 \\ + 940 \\ \hline 1,081 \end{array}$$

$$23 \times 47 = 1,081$$

Comparing Multiplication Models

Area Model

	40	7
20	800	140
3	120	21

Standard Algorithm

$$\begin{array}{r} 47 \\ \times 23 \\ \hline 141 \\ + 940 \\ \hline 1,081 \end{array}$$

Distribution Property

$$\begin{aligned} 23 \times 47 &= (20 + 3) \times (40 + 7) \\ &= (20 \times 40) + (20 \times 7) + (3 \times 40) + (3 \times 7) \\ &= 800 + 140 + 120 + 21 \\ &= 1,081 \end{aligned}$$

Practice 1Find the product using the **standard algorithm** for multiplication:

$$\begin{array}{r} \text{a} \quad 78 \\ \times 26 \\ \hline \\ + \\ \hline \end{array}$$

$$\begin{array}{r} \text{b} \quad 63 \\ \times 37 \\ \hline \\ + \\ \hline \end{array}$$

$$\begin{array}{r} \text{c} \quad 92 \\ \times 19 \\ \hline \\ + \\ \hline \end{array}$$

$$\begin{array}{r} \text{d} \quad 46 \\ \times 53 \\ \hline \\ + \\ \hline \end{array}$$

Multiplying Multi-Digit Numbers by 2-Digit Numbers**Example:** Multiply: 367×25 **Standard Algorithm**

1 Multiply the **Ones** digit (**5**) by **367**.

$$\begin{array}{r} 367 \\ \times 25 \\ \hline 1835 \end{array}$$

$5 \times 367 = 1,835$

2 Multiply the **Tens** digit (**2**) by **367**.

$$\begin{array}{r} 367 \\ \times 25 \\ \hline 1835 \\ + 7340 \end{array}$$

$20 \times 367 = 7,340$

3 Add the products.

$$\begin{array}{r} 367 \\ \times 25 \\ \hline 1835 \\ + 7340 \\ \hline 9175 \end{array}$$

$25 \times 367 = 9,175$

Area Model

$$\begin{aligned} 25 \times 367 &= 6,000 + 1,200 \\ &\quad + 140 + 1,500 \\ &\quad + 300 + 35 \\ &= 9,175 \end{aligned}$$

	300	60	7
20	6,000	1,200	140
5	1,500	300	35

Distribution Property

$$\begin{aligned} 25 \times 367 &= (20 + 5) \times (300 + 60 + 7) \\ &= (20 \times 300) + (20 \times 60) + (20 \times 7) + (5 \times 300) + (5 \times 60) + (5 \times 7) \\ &= 6,000 + 1,200 + 140 + 1,500 + 300 + 35 \\ &= 9,175 \end{aligned}$$

Example:

Multiply: $3,578 \times 56$

Standard Algorithm

1 Multiply the **Ones** digit (**6**) by **3,587**.

$$\begin{array}{r} 3,578 \\ \times 56 \\ \hline 21,468 \end{array}$$

$6 \times 3,578 = 21,468$

2 Multiply the **Tens** digit (**5**) by **3,587**.

$$\begin{array}{r} 3,578 \\ \times 56 \\ \hline 21,468 \\ + 178,900 \end{array}$$

$50 \times 3,578 = 178,900$

3 Add the products.

$$\begin{array}{r} 3,578 \\ \times 56 \\ \hline 21,468 \\ + 178,900 \\ \hline 200,368 \end{array}$$

$56 \times 3,578 = 200,368$

Area Model

$56 \times 3,578 = 200,368$

$150,000 + 25,000 + 3,500$
 $+ 400 + 18,000 + 3,000$
 $+ 420 + 48 = 200,368$

	3,000	500	70	8
50	150,000	25,000	3,500	400
6	18,000	3,000	420	48

Distribution Property

$$\begin{aligned}
 56 \times 3,578 &= (50 + 6) \times (3,000 + 500 + 70 + 8) \\
 &= (50 \times 3,000) + (50 \times 500) + (50 \times 70) + (50 \times 8) \\
 &\quad + (6 \times 3,000) + (6 \times 500) + (6 \times 70) + (6 \times 8) \\
 &= 150,000 + 25,000 + 3,500 + 400 + 18,000 + 3,000 \\
 &\quad + 420 + 48 = 200,368
 \end{aligned}$$

Practice 2 Find the product using the **standard algorithm** for multiplication:

a

$$\begin{array}{r} 248 \\ \times 72 \\ \hline \\ + \\ \hline \end{array}$$

b

$$\begin{array}{r} 1,729 \\ \times 56 \\ \hline \\ + \\ \hline \end{array}$$

c

$$\begin{array}{r} 2,507 \\ \times 63 \\ \hline \\ + \\ \hline \end{array}$$

d

$$\begin{array}{r} 6,008 \\ \times 93 \\ \hline \\ + \\ \hline \end{array}$$

Practice 3 Find the product using the area model:

a $39 \times 75 =$

	70	5
30		
9		

b $63 \times 208 =$

	200	8
60		
3		

c $38 \times 1,007 =$

	1,000	7
30		
8		

d $43 \times 217 =$

	200	10	7
40			
3			

e $25 \times 2,163 =$

	2,000	100	60	3
20				
5				

Practice 4 Find the product using the Distribution Property:

a $93 \times 24 = (\dots + \dots) \times (\dots + \dots)$
 $= (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots + \dots + \dots =$

b $72 \times 103 = (\dots + \dots) \times (\dots + \dots)$
 $= (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots + \dots + \dots =$

c $52 \times 214 = (\dots + \dots) \times (\dots + \dots + \dots)$
 $= (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $+ (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots + \dots + \dots + \dots + \dots =$

d $82 \times 107 =$
 $=$
 $=$

Estimating Products

Example: Estimate the product of the multiplication, then find the actual product.

a 53×67

Actual Product	Estimate
$\begin{array}{r} 67 \\ \times 53 \\ \hline 201 \\ + 3,350 \\ \hline 3,551 \end{array}$	$\begin{array}{r} 70 \\ \times 50 \\ \hline 3,500 \end{array}$
	Round to the greatest place value

b 39×174

Actual Product	Estimate
$\begin{array}{r} 174 \\ \times 39 \\ \hline 1,566 \\ + 5,220 \\ \hline 6,786 \end{array}$	$\begin{array}{r} 200 \\ \times 40 \\ \hline 8,000 \end{array}$
	Round to the greatest place value

Practice 5 Estimate the product of the multiplication, then find the actual product:

a 53×67

Actual Product	Estimate
$\begin{array}{r} \\ \times \\ \hline \\ + \\ \hline \end{array}$	$\begin{array}{r} \\ \times \\ \hline \end{array}$
	Round to the greatest place value

b 39×174

Actual Product	Estimate
$\begin{array}{r} \\ \times \\ \hline \\ + \\ \hline \end{array}$	$\begin{array}{r} \\ \times \\ \hline \end{array}$
	Round to the greatest place value

Practice 6 Answer the following:

- a Mona has a restaurant in Al-Quesyr. In February, Mona sold **402** kebabs. In March, she sold **753** kebabs. She makes each kebab with **83** grams of meat. How many grams of meat did she use in February and March?

- b) Mona's son, Wael, makes baklava to sell at his family's restaurant. His recipe calls for **170** grams each of pistachios, walnuts, and hazelnuts. In order to make enough for the customers, he needs to multiply his recipe by **18**. How many total grams of nuts will he need?
- c) For Wael's baklava syrup, he needs **250** mL of honey, **15** mL of orange extract, and **30** mL of lemon juice per recipe. How many total milliliters of liquid ingredients will he need for the syrup if he needs to make **18** batches?

Quiz?

10

1 Find the product of:

- a) 627×43 (Using the **area model**) b) 33×256 (Using **standard algorithm**)

	256
x	33
+	

- c) 75×248 (Using the **Distributive Property**)

$$\begin{aligned}
 & (\dots + \dots) \times (\dots + \dots + \dots) \\
 & = (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) \\
 & = \dots + \dots + \dots + \dots + \dots + \dots = \dots
 \end{aligned}$$

2 Estimate the product using **rounding to the greatest value**.

	189	→	
x	34		
+			

3 Bassem walks **456 meters** to go to school daily. What distance does he cover in **22 days**?

Theme

2

Unit

4

Division with Whole Numbers

Concept 4.1: Models for Division

Concept 4.2: Dividing by 2-Digit Divisors

Mathematical Operations and Algebraic Thinking

Unit

5

Multiplication and Division with Decimals

Concept 5.1: Multiplying Decimals

Concept 5.2: Dividing Decimals

Theme Units



Unit

6

Numerical Expressions and Patterns

Concept 6.1: Evaluating Numerical Expressions and Patterns

[illegible]

1&2 Lessons

Dividing by a 2-Digit Number Estimating Quotients

Remember

$$\begin{array}{c} \boxed{39} \div \boxed{9} = \boxed{4} \text{ (R } \boxed{3}\text{)} \\ \downarrow \quad \quad \downarrow \quad \quad \downarrow \quad \quad \downarrow \\ \text{Dividend} \quad \text{Divisor} \quad \text{Quotient} \quad \text{Remainder} \end{array}$$

Dividing by a 1-Digit Number

Using the Area Model to Divide

Example: Divide: $753 \div 6$

1

Draw a rectangle and write the divisor (6) on the left side of the rectangle.

- We look for a multiple of 6 close to 753.
- We find that 600 is a multiple of 6 because $600 = 6 \times 100$.
- We write 100 over one part of the rectangle, and we write $753 - 600 = 153$ inside it.

100		
753		
- 600		
153		

2

100	20	
753	153	
- 600	- 120	
153	33	

- We repeat the same steps with the rest of the number.

3

100	20	5	= 125
753	153	33	Quotient
- 600	- 120	- 30	
153	33	3	Remainder

$$753 \div 6 = 125 \text{ (R } 3\text{)}$$

- To find the quotient, we add the numbers above the rectangle.

$$100 + 20 + 5 = 125$$

Note that There is more than one way to use the **area model** to solve division problems, as in the following:

$$\begin{array}{r}
 100 + 10 + 10 + 5 = 125 \\
 \text{Quotient} \\
 \begin{array}{r}
 753 \\
 - 600 \\
 \hline
 153
 \end{array}
 \begin{array}{r}
 153 \\
 - 60 \\
 \hline
 93
 \end{array}
 \begin{array}{r}
 93 \\
 - 60 \\
 \hline
 33
 \end{array}
 \begin{array}{r}
 33 \\
 - 30 \\
 \hline
 3
 \end{array} \\
 \text{Remainder}
 \end{array}$$

$$753 \div 6 = 125 \text{ (R } 3\text{)}$$

$$\begin{array}{r}
 50 + 50 + 10 + 10 + 5 = 125 \\
 \text{Quotient} \\
 \begin{array}{r}
 753 \\
 - 300 \\
 \hline
 453
 \end{array}
 \begin{array}{r}
 453 \\
 - 300 \\
 \hline
 153
 \end{array}
 \begin{array}{r}
 153 \\
 - 60 \\
 \hline
 93
 \end{array}
 \begin{array}{r}
 93 \\
 - 60 \\
 \hline
 33
 \end{array}
 \begin{array}{r}
 33 \\
 - 30 \\
 \hline
 3
 \end{array} \\
 \text{Remainder}
 \end{array}$$

$$753 \div 6 = 125 \text{ (R } 3\text{)}$$

Practice 1 Divide using the **area model**:

a $76 \div 5$

$$\begin{array}{r}
 76 \\
 - \\
 \hline
 \end{array}$$

b $627 \div 9$

$$\begin{array}{r}
 627 \\
 - \\
 \hline
 \end{array}$$

c $3,256 \div 8$

d $6,820 \div 5$

Dividing by a Two-Digit Number Using the Area Model

Example: Divide: $986 \div 23$

1

We follow the same steps for dividing by a one-digit number:

- We look for a multiple of **23** close to the **dividend of 966**.
- We find that **$40 \times 23 = 920$** .
- We write **40** over one part of the rectangle, and we write **$966 - 920 = 46$** inside it.

	40 +
966	46
- 920	
46	

2

40 + 2 = 42	Quotient
966	46
- 920	- 46
46	0

Quotient

$$40 + 2 = 42$$

$$966 \div 23 = 42$$

Another Solution

10 + 10 + 10 + 10 + 2 = 42	Quotient
966	736
- 230	- 230
736	506
	- 230
	276
	- 230
	46
	- 46
	0

Quotient

$$10 + 10 + 10 + 10 + 2 = 42$$

$$966 \div 23 = 42$$

Example: Divide: $1,625 \div 13$

100 + 20 + 5 = 125	Quotient
1,625	325
- 1,300	- 260
325	65
	- 65
	0

$$1,625 \div 13 = 125$$

Another Solution

100 + 10 + 10 + 5 = 125	Quotient
1,625	325
- 1,300	- 130
325	195
	- 130
	65
	- 65
	0

$$1,625 \div 13 = 125$$

Example: Divide: $10,454 \div 24$

	400	+	30	+	5	=	435
	10,454		854		134		
24	- 9,600		- 720		- 120		
	854		134		14		

$$10,454 \div 24 = 435 \text{ (R 14)}$$

Another Solution

	100	+	100	+	100	+	100	+	10	+	10	+	10	+	5	=	435
	10,454		8,054		5,654		3,254		854		614		374		134		
24	- 2,400		- 2,400		- 2,400		- 2,400		- 240		- 240		- 240		- 120		
	8,054		5,654		3,254		854		614		374		134		14		

$$10,454 \div 24 = 435 \text{ (R 14)}$$

Practice 2 Divide using the **area model**:

a $998 \div 19 =$ _____

19		
----	--	--

b $899 \div 37 =$ _____

37		
----	--	--

c $4,428 \div 36 =$ _____

36			
----	--	--	--

d $7,946 \div 63 =$ _____

--	--	--

e $17,082 \div 73 =$ _____

--	--	--

Practice 3

Complete the **area model**, then find the **quotient**:

a $7,776 \div 32$

	7,776	1,376	96
32	- 6,400	- 1,280	- 96
	1,376	96	14
	+ + =		

b $9,234 \div 81$

	100	10	2	2
	9,234			
81	-	-	-	-
	+ + + + =			

Estimating Quotients

- To estimate the quotient, round the dividend and the divisor to the greatest place value, then divide.

Example: Divide: $1,632 \div 48$

Actual Quotient

	30	4
	1,632	192
48	- 1,440	- 192
	192	0

$1,632 \div 48 = 34$

Estimate

$1,632 \div 48$
 $\downarrow \quad \downarrow$
 $2,000 \div 50 = 40$

The answer is reasonable.

Example: Divide: $6,552 \div 28$

Actual Quotient

	200	30	4
	6,552	952	112
28	- 5,600	- 840	- 112
	952	112	0

$6,552 \div 28 = 234$

Estimate

$6,552 \div 28$
 $\downarrow \quad \downarrow$
 $6,000 \div 30 = 200$

The answer is reasonable.

Practice 4 Estimate the **quotient**, then find the **actual result**:

a $791 \div 21$

Actual Quotient

$791 \div 21 = \dots\dots\dots$

Estimate

$798 \div 21$

$$\begin{array}{r} \downarrow \quad \downarrow \\ \dots\dots\dots \div \dots\dots\dots = \dots\dots\dots \end{array}$$

The answer is

$\dots\dots\dots$

b $2,142 \div 53$

Actual Quotient

$2,142 \div 53 = \dots\dots\dots$

Estimate

$2,142 \div 53$

$$\begin{array}{r} \downarrow \quad \downarrow \\ \dots\dots\dots \div \dots\dots\dots = \dots\dots\dots \end{array}$$

The answer is

$\dots\dots\dots$

c $20,904 \div 67$

Actual Quotient

$20,904 \div 67 = \dots\dots\dots$

Estimate

$20,904 \div 67$

$$\begin{array}{r} \downarrow \quad \downarrow \\ \dots\dots\dots \div \dots\dots\dots = \dots\dots\dots \end{array}$$

The answer is

$\dots\dots\dots$



10

1 Choose the correct answer:

- a In $38 \div 9 = 4$ (R2), the divisor is (9 or 38 or 2 or 4)
- b In $23 \div 7 = 3$ (R2), the quotient is (2 or 7 or 23 or 3)
- c In $55 \div 6 = 9$ (R1), the dividend is (9 or 6 or 55 or 1)
- d In $65 \div 7 = 9$ (R2), the remainder is (65 or 7 or 9 or 2)

2 Complete the following operation:

..... $\div$
= R

673	173	23
- 500	- 150	- 20
.....		

3 Estimate the **quotient** using **rounding to the greatest value**:

$$4,428 \div 41$$

..... $\div$ =

.....			

Unit

4

Division with Whole Numbers

Concept 4.2

Dividing by 2-Digit Divisors

Lessons 3–5

Using the Division Algorithm

The Relation Between Division and Multiplication Multistep Story Problems

Learning Objectives:

By the end of these lessons, the student will be able to:

- Use the standard algorithm to divide by a 2-digit divisor.
- Use multiplication to check answers to division problems.
- Solve multistep story problems involving whole numbers and the four operations.



3.5 Lessons

Using the Division Algorithm The Relation Between Division and Multiplication Multistep Story Problems

Using the Standard Algorithm to Divide

Example: Divide: $891 \div 3$

The steps of the division process:

First Step:
Divide

$$\begin{array}{r} 2 \\ 3 \overline{) 891} \end{array}$$

Second Step:
Multiply

$$\begin{array}{r} \times 2 \\ 3 \overline{) 891} \\ \underline{6} \end{array}$$

Third Step:
Subtract

$$\begin{array}{r} 2 \\ 3 \overline{) 891} \\ \underline{- 6} \\ 2 \end{array}$$

Fourth Step:
Drop the next digit

$$\begin{array}{r} 2 \\ 3 \overline{) 891} \\ \underline{- 6} \\ 29 \end{array}$$

We repeat the same steps

Divide: $29 \div 3$

Multiply: 9×3

Subtract: $29 - 27$

Drop the digit: 1

$$\begin{array}{r} 29 \\ 3 \overline{) 891} \\ \underline{- 6} \\ 29 \\ \underline{- 27} \\ 21 \end{array}$$

Divide: $21 \div 3$

Multiply: 7×3

Subtract: $21 - 21$

$$\begin{array}{r} 297 \\ 3 \overline{) 891} \\ \underline{- 6} \\ 29 \\ \underline{- 27} \\ 21 \\ \underline{- 21} \\ 0 \end{array}$$

So, $891 \div 3 = 297$

Note that: Multiplication and division are **inverse operations**, so we can use multiplication to check the result of division.

From the previous example:

$297 \times 3 = 891$, where the product of multiplication is equal to the dividend, so the quotient is true.

Example:**Divide: $859 \div 8$** **(Using the standard division algorithm)**

- Note that:** When dividing $5 \div 8$, division is **not possible** because $5 < 8$.

So: We put **0** over the digit **5**, and we divide **5** and **9** together: $59 \div 8$.

Thus: $859 \div 8 = 107 \text{ (R } 3\text{)}$

Check: $(107 \times 8) + 3 = 859$

$5 \div 8$
 Not possible

$8 \div 8 = 1$

$56 \div 8 = 7$

$$\begin{array}{r}
 8 \overline{) 859} \\
 \underline{- 8} \\
 05 \\
 \underline{- 0} \\
 59 \\
 \underline{- 56} \\
 3
 \end{array}$$

$8 \times 7 \rightarrow -$

Practice 1**Divide using the standard division algorithm:**

a $785 \div 5$

 $=$

b $2,598 \div 4$

 $=$

c $3,565 \div 3$

 $=$

d $9,628 \div 8$

 $=$

Dividing by a Two-Digit Number Using the Standard Division Algorithm

Create a **multiplication table** for the divisor to help you:

$$46 \times 1 = 46$$

$$46 \times 2 = 92$$

$$46 \times 3 = 138$$

$$46 \times 4 = 184$$

$$46 \times 5 = 230$$

$$46 \times 7 = 322$$

1 Starting from the left, we find that:

$9 < 46$, so we divide $99 \div 64$.

With the help of the previous table,

we find that:

The nearest multiple of 46 to 99 is $46 \times 2 = 92$.

$$\begin{array}{r} 0 \ 2 \ 1 \ 7 \\ 46 \overline{) 9,982} \\ \underline{- 92} \\ 78 \end{array}$$

2

$$\begin{array}{r} 0 \ 2 \ 1 \ 7 \\ 46 \overline{) 9,982} \\ \underline{- 92} \\ 78 \\ \underline{- 46} \\ 322 \end{array}$$

So: $9,982 \div 46 = 217$

Check: $217 \times 46 = 9,982$

3

$$\begin{array}{r} 0 \ 2 \ 1 \ 7 \\ 46 \overline{) 9,982} \\ \underline{- 92} \\ 78 \\ \underline{- 46} \\ 322 \\ \underline{- 322} \\ 000 \end{array}$$

Example:

a Divide $1,863 \div 23 =$ **81**

$$\begin{array}{r} 8 \ 1 \\ 23 \overline{) 1,863} \\ \underline{- 184} \\ 23 \\ \underline{- 23} \\ 00 \end{array}$$

Draft

$$\begin{array}{l} 23 \times 1 = 23 \\ 23 \times 2 = 46 \\ 23 \times 3 = 69 \\ 23 \times 4 = 92 \\ 23 \times 5 = 115 \\ 23 \times 6 = 138 \\ 23 \times 7 = 161 \\ 23 \times 8 = 184 \\ 23 \times 9 = 207 \end{array}$$

b Divide $7,038 \div 46 =$ **153**

$$\begin{array}{r} 1 \ 5 \ 3 \\ 46 \overline{) 7,038} \\ \underline{- 46} \\ 243 \\ \underline{- 230} \\ 138 \\ \underline{- 138} \\ 000 \end{array}$$

Draft

$$\begin{array}{l} 46 \times 1 = 46 \\ 46 \times 2 = 92 \\ 46 \times 3 = 138 \\ 46 \times 4 = 184 \\ 46 \times 5 = 230 \\ 46 \times 6 = 276 \end{array}$$

Practice 2 Divide using the standard division algorithm:

a $1,449 \div 63 =$

Draft

b $44,032 \div 42 =$

Draft

c $4,884 \div 24 =$

Draft

d $7,834 \div 37 =$

Draft

Practice 3 Answer the following:

- a In her cafe, Rana sells cakes that were baked in a bakery. Rana received an order to deliver **350** cakes. She put the cakes in bags, **12** cakes each. Find the number of bags she needs.

Draft

- b** Hazem has **5** boxes of red pens, each with **24** pens, and **4** boxes of blue pens, each with **12** pens.

Hazem wants to distribute the pens evenly among **8** of his friends.

How many pens will each friend get?

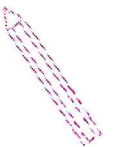
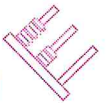
Draft



- c** The school library received **55** boxes, each containing **72** books.

These books will be distributed in **12** cupboards. How many books will be in each cupboard?

Draft





1 Complete the following **division** operations:

a

$$\begin{array}{r}
 4 \overline{) 656} \\
 \underline{- 4} \\
 25 \\
 \underline{- 24} \\
 16 \\
 \underline{- 16} \\
 00
 \end{array}$$

b

$$\begin{array}{r}
 125 \\
 5 \overline{) 625} \\
 \underline{- } \\
 \\
 \underline{- } \\
 \\
 \underline{- } \\
 \\
 \underline{- } \\

 \end{array}$$

c

$$\begin{array}{r}
 8 \overline{) 992} \\
 \underline{- } \\
 \\
 \underline{- } \\
 \\
 \underline{- } \\
 \\
 \underline{- } \\

 \end{array}$$

2 Divide using the **standard division algorithm**:

$$5,505 \div 15$$

$$\begin{array}{r}
 \\
 \\
 \underline{- } \\
 \\
 \underline{- } \\
 \\
 \underline{- } \\
 \\
 \underline{- } \\
 \\
 \underline{- } \\

 \end{array}$$

$$15 \times 1 = 15$$

$$15 \times 2 = 30$$

$$15 \times 3 = 45$$

$$15 \times 4 = 60$$

$$15 \times 5 = 75$$

$$15 \times 6 = 90$$

$$15 \times 7 = 105$$

$$15 \times 8 = 120$$

$$15 \times 9 = 135$$

3 A bookstore contains **6,501 books** distributed on **33 shelves**.
How many books are there on each shelf?

.....

.....

.....



Unit

5

Multiplication and Division with Decimals

Concept 5.1

Multiplying Decimals

Lessons

1&2

Multiplying by Powers of Ten

Multiplying Decimals by Whole Numbers

Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain patterns when multiplying whole numbers by powers of ten.
- Multiply a decimal by a whole number.

Lessons

3&4

Multiplying Tenths by Tenths

Multiplying Using the Area of Rectangle Model

Learning Objectives:

By the end of these lessons, the student will be able to:

- Use models to represent multiplying decimals.
- Explain patterns when multiplying Tenths by Tenths.
- Estimate products of decimals.
- Use the area model to multiply decimals.

Lessons

5&6

Multiplying Decimals through the Hundredths Place

Multiplying Decimals through the Thousandths Place

Learning Objectives:

By the end of these lessons, the student will be able to:

- Use the standard algorithm to multiply decimals through the Hundredths place.
- Use the standard algorithm to multiply decimals through the Thousandths place.
- Use estimation to check the reasonableness of his/her answers.

Lessons

7-9

Decimals and the Metric System

Measurement, Decimals, and Powers of Ten

Solving Multistep Story Problems

Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain relationships between the metric system and decimals.
- Use decimals to represent equivalent measurements.
- Relate converting measurements in the metric system to multiplying by powers of ten.
- Solve multistep story problems involving addition, subtraction, and multiplication of decimals.

1&2 Lessons

Multiplying by Powers of Ten Multiplying Decimals by Whole Numbers

NOTE

- You can add **zeros** to the left of the last non-zero digit, or add a **decimal point** to the whole number, or add **zeros** to the right of the decimal point without changing the value of the number.

Example:

$$0008 = 008 = 08 = 8 = 8.0 = 8.00 = 8.000$$

Multiplying by (10, 100, 1,000, ...)

$$8.0 \times 10 = 80$$

$$8.00 \times 100 = 800$$

$$8.000 \times 1,000 = 8,000$$

When multiplying by 10, 100, or 1,000, move the decimal point to the **right** with the same number of **zeros**.

$$3.45 \times 10 = 34.5$$

$$3.45 \times 100 = 345$$

$$3.45 \times 1,000 = 3,450$$

Multiplying by (0.1, 0.01, 0.001, ...)

$$8. \times 0.1 = 0.8$$

$$8. \times 0.01 = 0.08$$

$$8. \times 0.001 = 0.008$$

When multiplying by 0.1, 0.01, or 0.001, move the decimal point to the **left** by the same number of **decimal parts**.

$$21.7 \times 0.1 = 2.17$$

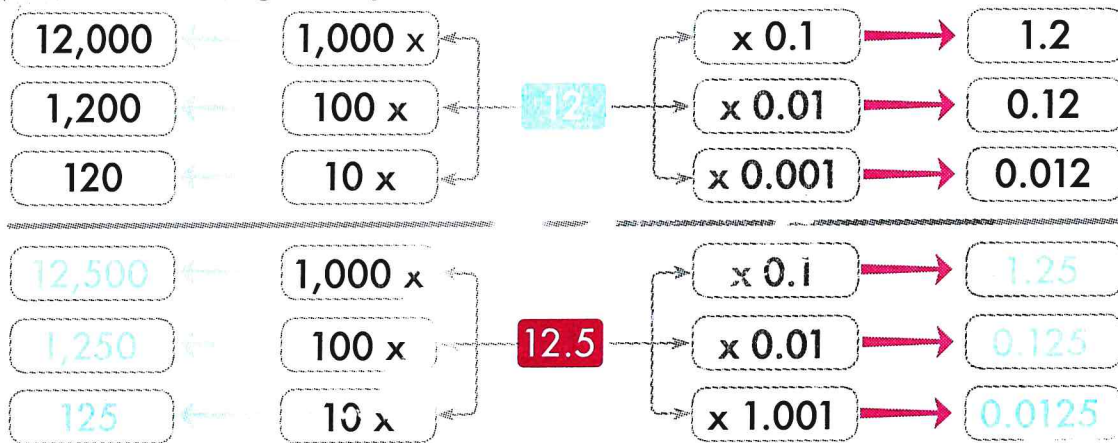
$$21.7 \times 0.01 = 0.217$$

$$21.7 \times 0.001 = 0.0217$$

The place of the whole number cannot be left blank, a "0" is added to save its place.

NOTE

• Note the following examples:



Practice 1 Complete the following patterns:

a	9 x 10 =	b	1.2 x 10 =	c	23.5 x 10 =
	9 x 100 =		1.2 x 100 =		23.5 x 100 =
	9 x 1,000 =		1.2 x 1,000 =		23.5 x 1,000 =
	9 x 0.1 =		1.2 x 0.1 =		23.5 x 0.1 =
	9 x 0.01 =		1.2 x 0.01 =		23.5 x 0.01 =
	9 x 0.001 =		1.2 x 0.001 =		23.5 x 0.001 =

Practice 2 Complete the following:

a	4.2 x 10 =	b	360 x 0.1 =	c	7.4 x 0.01 =
d	1.245 x 100 =	e	602.1 x 0.01 =	f	14.14 x 0.1 =
g	0.2 x 100 =	h	1.3 x 0.1 =	i	12 x 0.001 =

Practice 3 Complete the following table:

x	10	100	1,000	1	0.1	0.01	0.001
3							
30							
0.3							

Multiplying Decimals by Whole Numbers

Note the following patterns:

$$5 \times 0.3 = 1.5$$

$$\downarrow \quad \downarrow \quad \uparrow$$

$$5 \times 3 \text{ Tenths} = 15 \text{ Tenths}$$

$$5 \times \frac{5}{10} = \frac{15}{10}$$

$$4 \times 0.07 = 0.28$$

$$\downarrow \quad \downarrow \quad \uparrow$$

$$5 \times 7 \text{ Hundredths} = 28 \text{ Hundredths}$$

$$4 \times \frac{7}{100} = \frac{28}{100}$$

$$9 \times 0.15 = 1.35$$

$$\downarrow \quad \downarrow \quad \uparrow$$

$$9 \times 15 \text{ Hundredths} = 135 \text{ Hundredths}$$

$$9 \times \frac{15}{100} = \frac{135}{100}$$

$$13 \times 0.218 = 2.834$$

$$\downarrow \quad \downarrow \quad \uparrow$$

$$13 \times 218 \text{ Thousandths} = 2,834 \text{ Thousandths}$$

$$13 \times \frac{218}{1000} = \frac{2,834}{1000}$$

Generally:

- When multiplying a whole number by a decimal, we do the multiplication **without** the decimal point, and then we put the decimal point while maintaining the same number of **decimal parts**.

$$23 \times 0.9 = 20.7$$

$$23 \times 0.09 = 2.07$$

$$23 \times 0.009 = 0.207$$

$$23 \times 9 = 207$$

$$2.3 \times 9 = 20.7$$

$$0.23 \times 9 = 2.07$$

$$0.023 \times 9 = 0.207$$

Practice 4 Find the product of (34×23) , then complete:

a $3.4 \times 23 = \dots\dots\dots$

d $34 \times 0.23 = \dots\dots\dots$

b $0.34 \times 23 = \dots\dots\dots$

e $0.034 \times 23 = \dots\dots\dots$

c $34 \times 2.3 = \dots\dots\dots$

f $34 \times 0.023 = \dots\dots\dots$

	34
$\times$	23
$+$	

Practice 5

Find the product of:

a $0.2 \times 8 =$

b $0.07 \times 8 =$

c $9 \times 0.009 =$

d $7 \times 1.2 =$

e $6 \times 0.39 =$

f $9.07 \times 8 =$

g $0.142 \times 5 =$

h $0.025 \times 8 =$

i $0.125 \times 12 =$

Quiz?

10

1 Choose the correct answer:

a $32.7 \times 10 =$

(3.27 or 0.327 or 32.70 or 327)

b $850 \times 0.01 =$

(8.5 or 85.0 or 0.85 or 850)

c $0.7 \times 0.04 =$

(0.28 or 2.8 or 0.028 or 280)

d $6.279 \times 10 =$

(0.6289 or 62.79 or 6.279 or 627.9)

2 Find the product of:

a $0.07 \times 5 =$

b $0.2 \times 6 =$

c $9 \times 0.009 =$

3 Given that: $362 \times 17 = 6154$, complete.

a $3.62 \times 17 =$

b $36.2 \times 17 =$

c $0.362 \times 17 =$

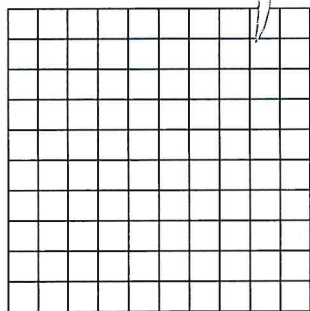
3 & 4 Lessons

Multiplying Tenths by Tenths Multiplying Using the Area of Rectangle Model

Multiplying Decimals with Arrays (The Base 10 Grids)

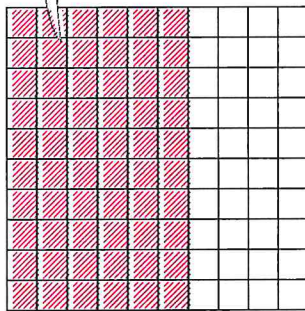
To multiply 0.3×0.6 using the Base 10 grids:

Color a **horizontal** part representing **0.3** (30 squares).



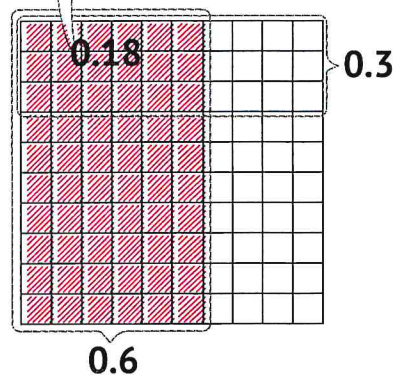
X

Color a **vertical** part representing **0.6** (60 squares) in a different color.



=

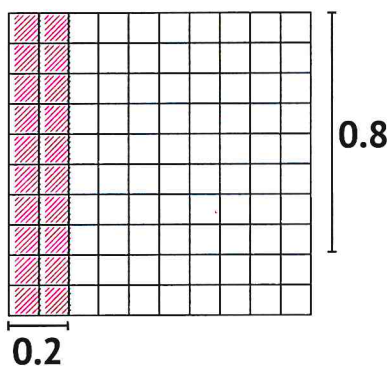
The squares with the **two colors overlapping** represent the product **0.18** (18 squares).



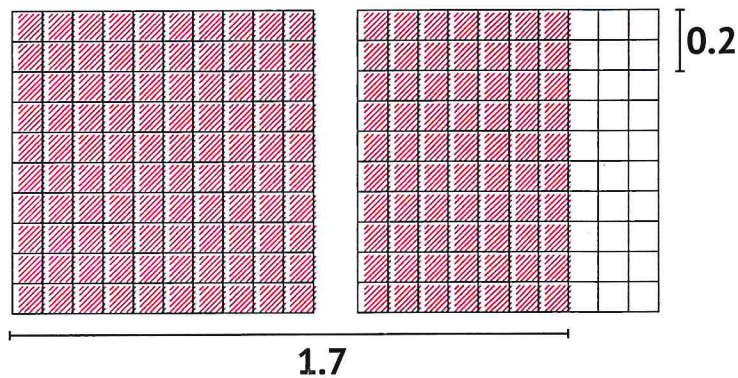
So, $0.3 \times 0.6 = 0.18$

Example:

a $0.8 \times 0.2 = 0.16$

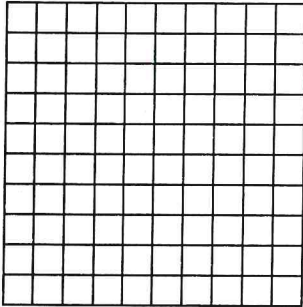


b $0.2 \times 1.7 = 0.34$

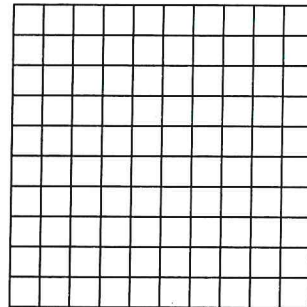


Practice 1 Use the Base 10 grids to find the product:

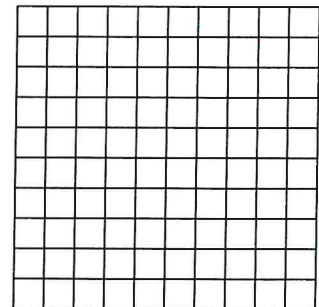
a $0.4 \times 0.8 = \dots\dots\dots$



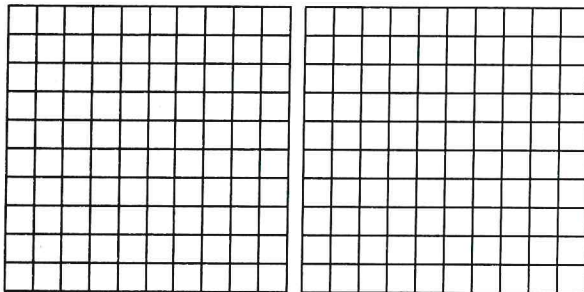
b $0.3 \times 0.9 = \dots\dots\dots$



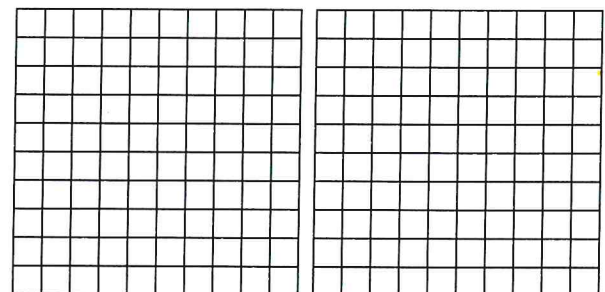
c $0.7 \times 0.2 = \dots\dots\dots$



d $1.5 \times 0.5 = \dots\dots\dots$



e $0.2 \times 1.7 = \dots\dots\dots$



Using the Area Model to Multiply Decimals

Example: Multiply using the area model:

a 3.24×5.2

$$3.24 \times 5.2 = 15 + 1 + 0.2 + 0.6 \\ + 0.04 + 0.008 = 16.848$$

	3	0.2	0.04
5	15	1	0.2
0.2	0.6	0.04	0.008

b 3.8×0.27

$$3.8 \times 0.27 = 0.6 + 0.16 + 0.21 + 0.056 \\ = 1.026$$

	3	0.8
0.2	0.6	0.16
0.07	0.21	0.056

Practice 2 Multiply using the area model:

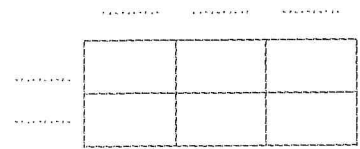
a 0.8×2.7



b 4.2×3.6



c 7.4×27.3

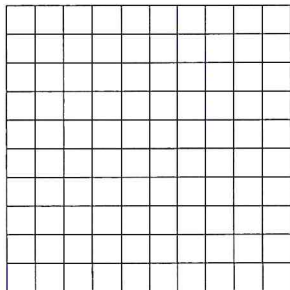


Quiz?

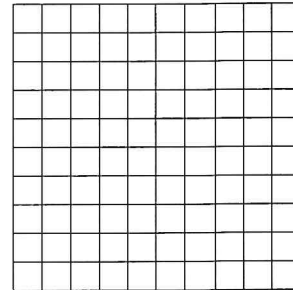
10

1 Use the Base 10 grids to find the product:

a $0.3 \times 0.7 =$

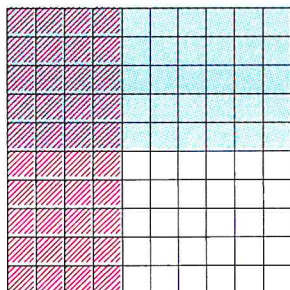


b $0.8 \times 0.9 =$

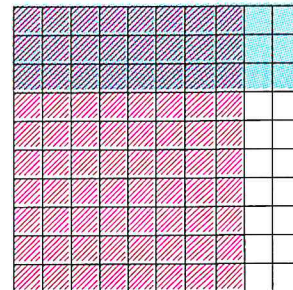


2 Complete the operation:

a $\quad \times \quad =$



b $\quad \times \quad =$



3 Multiply using the area model:

$3.27 \times 1.5 =$



5 & 6 Lessons

Multiplying Decimals through the Hundredths Place Multiplying Decimals through the Thousandths Place

Using the Standard Algorithm to Multiply Decimals

Example: Multiply: **a** 32.5×7.3 **b** 3.25×7.3

c 3.25×73 **d** 32.5×73

- Multiply the **two numbers** without the decimals.
- Put the decimal point in the result from the **right** after the number of digits equal to the sum of the decimal places in the two numbers before the multiplication.

$$\begin{array}{r} 13 \\ 1 \\ 325 \\ \times 73 \\ \hline 975 \\ + 22750 \\ \hline 23725 \end{array}$$

a $32.5 \times 7.3 = 237.25$

1 Decimal Place 1 Decimal Place = 2 Decimal Places

b $3.25 \times 7.3 = 23.725$

2 Decimal Places 1 Decimal Place = 3 Decimal Places

c $3.25 \times 73 = 237.25$

2 Decimal Places No Decimal Places = 2 Decimal Places

d $32.5 \times 73 = 2372.5$

1 Decimal Place No Decimal Places = 1 Decimal Place

NOTE

- If the number of digits in the product is **less than** the total number of decimal places, add **zeros** by the amount of increment to the **left** of the resulting number, and then put the decimal point.

Example: $0.04 \times 0.2 = 0.008$

2 Decimal Places 1 Decimal Place = 3 Decimal Places

In $4 \times 2 = 8$, the product of multiplication is one digit, and we need 3 digits, so we add two **zeros** and then put the decimal point.

Practice 1

If $24 \times 13 = 312$, then complete:

a $2.4 \times 13 =$

b $24 \times 1.3 =$

c $2.4 \times 1.3 =$

d $0.24 \times 1.3 =$

e $2.4 \times 0.13 =$

f $2.4 \times 130 =$

g $0.24 \times 13 =$

h $0.24 \times 0.13 =$

Practice 2

In each of the following, put a decimal point in the product:

a $3.6 \times 4.1 = 1476$

b $8.7 \times 52 = 4524$

c $1.25 \times 3.7 = 4625$

d $7.74 \times 23 = 178.02$

e $92.3 \times 0.08 = 7384$

f $183 \times 0.06 = 1098$

g $75.63 \times 0.14 = 105882$

h $2.008 \times 42 = 84336$

Practice 3

Use the standard algorithm to multiply:

a

$$\begin{array}{r} 3.5 \\ \times 0.7 \\ \hline \end{array}$$

b

$$\begin{array}{r} 7.6 \\ \times 3.4 \\ \hline \\ + \\ \hline \end{array}$$

c

$$\begin{array}{r} 2.31 \\ \times 1.4 \\ \hline \\ + \\ \hline \end{array}$$

d

$$\begin{array}{r} 7.23 \\ \times 0.12 \\ \hline \\ + \\ \hline \end{array}$$

Quiz?

10

1 Given that: $49 \times 35 = 1715$, complete:

a $4.9 \times 0.35 =$

b $0.49 \times 350 =$

c $4.9 \times 3.5 =$

2 Put the decimal point in the suitable place:

a $1.7 \times 5.9 = 1003$

b $71.2 \times 0.06 = 4272$

c $55.4 \times 8.03 = 444862$

3 Find the product: 65.2

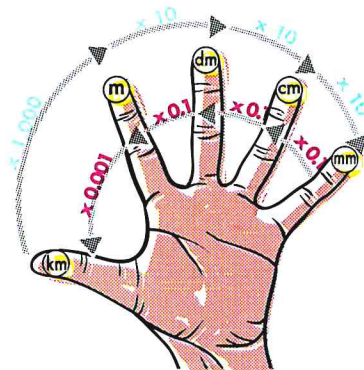
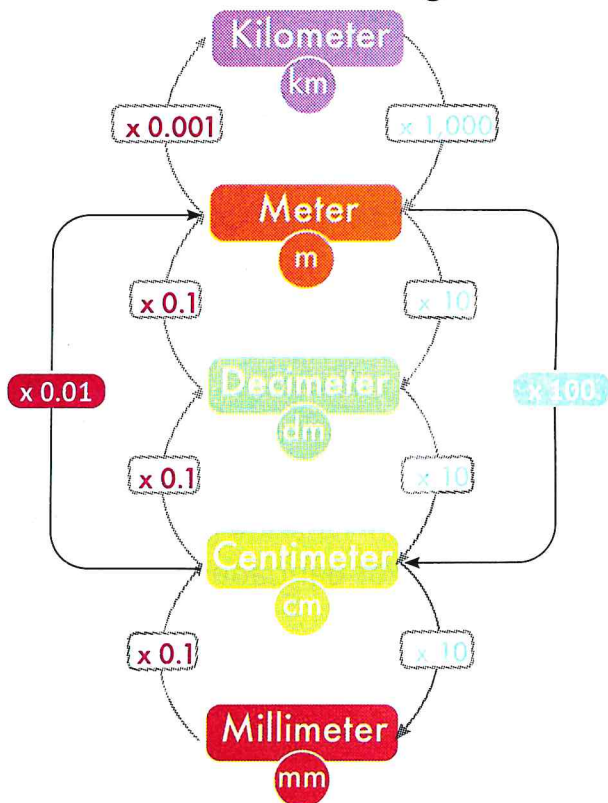
$$\begin{array}{r} 65.2 \\ \times 3.8 \\ \hline \\ + \\ \hline \end{array}$$

7.9 Lessons

Decimals and the Metric System Measurement, Decimals, and Powers of Ten Solving Multistep Story Problems

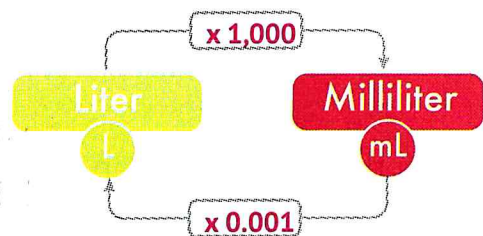
Remember

Length Measurement Units



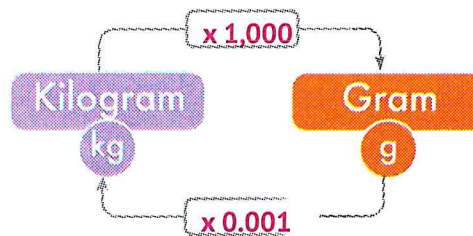
- $1 \text{ km} = 1 \times 1,000 = 1,000 \text{ m}$
- $1 \text{ m} = 1 \times 0.001 = 0.001 \text{ km}$
- $1 \text{ m} = 1 \times 10 = 10 \text{ dm}$
- $1 \text{ dm} = 1 \times 0.1 = 0.1 \text{ m}$
- $1 \text{ dm} = 1 \times 10 = 10 \text{ cm}$
- $1 \text{ cm} = 1 \times 0.1 = 0.1 \text{ dm}$
- $1 \text{ cm} = 1 \times 10 = 10 \text{ mm}$
- $1 \text{ mm} = 1 \times 0.1 = 0.1 \text{ cm}$

Capacity Measurement Units



- $1 \text{ liter} = 1 \times 1,000 = 1,000 \text{ mL}$
- $1 \text{ mL} = 1 \times 0.001 = 0.001 \text{ liter}$

Mass Measurement Units



- $1 \text{ kg} = 1 \times 1,000 = 1,000 \text{ g}$
- $1 \text{ g} = 1 \times 0.001 = 0.001 \text{ kg}$

Practice 1

Complete, as in the examples:

Examples: $10,870 \text{ g} = 10,870 \times 0.001 = 10.870 \text{ kg}$

$45.62 \text{ m} = 45.62 \times 100 = 4,562 \text{ cm}$

- a $3,465 \text{ mL} = \dots \times \dots = \dots \text{ L}$
- b $245 \text{ cm} = \dots \times \dots = \dots \text{ m}$
- c $0.7 \text{ m} = \dots \times \dots = \dots \text{ cm}$
- d $7.56 \text{ dm} = \dots \times \dots = \dots \text{ cm}$
- e $25,378 \text{ g} = \dots \times \dots = \dots \text{ kg}$
- f $56.89 \text{ L} = \dots \times \dots = \dots \text{ mL}$
- g $56 \text{ m} = \dots \times \dots = \dots \text{ km}$

Practice 2

Answer the following:

- a Rania is a nurse in a hospital. She is getting wrap bandages from the storage closet for her patients. She needs **1.35** meters of bandages for each of her **4** patients. How many meters does she need?
-
-
- b Dalia made **a liter** of sugar cane juice. She drank **320** milliliters. Her father drank **0.25** liter. How much sugar cane juice is remaining? (In liters)
-
-
- c Ehab wants to know how much he has grown this year. In January, his height was **138.2** centimeters. By the end of the year, he was **1.5** meters tall. How much did Ehab grow during the year? (In centimeters)
-
-

- d Marwan is designing a new circuit board for the computer he is repairing. The old circuit board measured 7.25 centimeters by 36 millimeters. He planned for the new circuit board to be 80 mm by 5.5 cm. What is the difference in area of the circuit boards? (In centimeters)

.....

.....

.....

Quiz?

10

1 Choose the correct answer:

- a 2,575 mL = L (2.575 or 25.75 or 257.5 or 0.2575)
- b 648 cm = m (0.648 or 64.8 or 6.48 or 6.048)
- c 0.75 m = cm (75 or 7.5 or 0.75 or 0.075)
- d 12.87 kg = g (1.287 or 128.7 or 1,287 or 12,870)

2 Complete the following:

- a 48.29 dm = cm
- b 9500 g = kg
- c 6.7 L = mL
- d 125 m = km

3 Find:

$$3.25 \text{ kg} + 1750 \text{ g} = \dots\dots\dots \text{ kg} + \dots\dots\dots \text{ kg} = \dots\dots\dots \text{ kg}$$

$$= \dots\dots\dots \text{ g}$$



Unit

5

Multiplication and Division with Decimals

Concept 5.2

Dividing Decimals

Lessons 10&11

Dividing by Powers of Ten Patterns and Relationships in Powers of Ten

Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain patterns he/she notices when dividing by powers of 10.
- Make connections between multiplying and dividing by powers of ten.
- Explain the meaning of decimal division problems.

Lessons 12&13

Dividing Decimals by Whole Numbers Dividing Decimals by Decimals

Learning Objectives:

By the end of these lessons, the student will be able to:

- Use the standard algorithm to divide decimals through the Thousandths place.
- Use estimation to check the reasonableness of his/her answers.



10&11 Lessons

Dividing by Powers of Ten Patterns and Relationships in Powers of Ten

Dividing by (10, 100, 1,000, ...)

$$\begin{aligned} 8. & \div 10 = 0.8 \\ 8. & \div 100 = 0.08 \\ 8. & \div 1,000 = 0.008 \end{aligned}$$

When dividing by 10, 100, or 1,000, move the decimal point to the **left** with the same number of **zeros**.

$$\begin{aligned} 24.36 & \div 10 = .436 \\ 24.36 & \div 100 = 0.2436 \\ 24.36 & \div 1,000 = 0.02436 \end{aligned}$$

Dividing by (0.1, 0.01, 0.001, ...)

$$\begin{aligned} 8. & \div 0.1 = 80 \\ 8. & \div 0.01 = 800 \\ 8. & \div 0.001 = 8,000 \end{aligned}$$

When dividing by 0.1, 0.01, or 0.001, move the decimal point to the **right** with the same number of **decimal parts**.

$$\begin{aligned} 24.36 & \div 0.1 = 243.6 \\ 24.36 & \div 0.01 = 2,436 \\ 24.36 & \div 0.001 = 24,360 \end{aligned}$$

The whole number place cannot be left blank, so "0" is added to save its place.

Practice 1 Complete the following patterns:

a

$$\begin{aligned} 9 \div 10 &= \dots\dots\dots \\ 9 \div 100 &= \dots\dots\dots \\ 9 \div 1,000 &= \dots\dots\dots \\ 9 \div 0.1 &= \dots\dots\dots \\ 9 \div 0.01 &= \dots\dots\dots \\ 9 \div 0.001 &= \dots\dots\dots \end{aligned}$$

b

$$\begin{aligned} 1.42 \div 10 &= \dots\dots\dots \\ 1.42 \div 100 &= \dots\dots\dots \\ 1.42 \div 1,000 &= \dots\dots\dots \\ 1.42 \div 0.1 &= \dots\dots\dots \\ 1.42 \div 0.01 &= \dots\dots\dots \\ 1.42 \div 0.001 &= \dots\dots\dots \end{aligned}$$

c

$$\begin{aligned} 230 \div 10 &= \dots\dots\dots \\ 230 \div 100 &= \dots\dots\dots \\ 230 \div 1,000 &= \dots\dots\dots \\ 230 \div 0.1 &= \dots\dots\dots \\ 230 \div 0.01 &= \dots\dots\dots \\ 230 \div 0.001 &= \dots\dots\dots \end{aligned}$$

Practice 2 Divide:

- a $800 \div 1,000 = \dots\dots\dots$ b $6,700 \div 100 = \dots\dots\dots$
 c $5.7 \div 0.1 = \dots\dots\dots$ d $2.16 \div 0.01 = \dots\dots\dots$
 e $71 \div 1,000 = \dots\dots\dots$ f $12.8 \div 0.01 = \dots\dots\dots$

Practice 3 Complete the following:

- a $0.4 \div \dots\dots\dots = 0.04$ b $0.4 \div \dots\dots\dots = 400$
 c $29.08 \div \dots\dots\dots = 290.8$ d $\dots\dots\dots \div 0.01 = 10.23$
 e $\dots\dots\dots \div 1,000 = 2.5$ f $\dots\dots\dots \div 0.001 = 20,000$

Metric Conversions with Multiplication and Division

NOTE

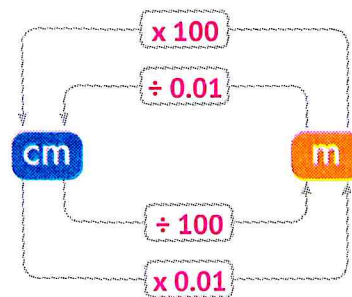
Multiplying by (0.1, 0.01, 0.001,...) $2.5 \times 0.1 = \mathbf{0.25}$, $2.5 \div 10 = \mathbf{0.25}$	is equivalent to	Dividing by (10, 100, 1,000,...) $2.5 \times 0.1 = 2.5 \div 10 = 0.25$
Multiplying by (10, 100, 1,000,...) $2.5 \times 10 = \mathbf{25}$, $2.5 \div 0.1 = \mathbf{25}$	is equivalent to	Dividing by (0.1, 0.01, 0.001,...) $2.5 \times 10 = 2.5 \div 0.1 = 25$

From the above, we find that:

- When you convert from one measurement unit to another, you can use multiplication or division.

Example: Note the corresponding figure:

- To convert from meters to centimeters, you can multiply by **100** or divide by **0.01**.
- To convert from centimeters to meters, you can multiply by **0.01** or divide by **100**.



Practice 4

Complete each **conversion**. Then, write a **multiplication equation** and a **division equation** with the same answer:

Example: 45 mm = 4.5 cm

$$45 \times 0.1 = 4.5$$

$$45 \div 10 = 4.5$$

a 4.65 m = cm

$$4.65 \times \dots = \dots$$

$$4.65 \div \dots = \dots$$

b 5.6 kg = g

$$5.6 \times \dots = \dots$$

$$5.6 \div \dots = \dots$$

c 42 dm = cm

$$42 \times \dots = \dots$$

$$42 \div \dots = \dots$$

d 0.02 L = mL

$$0.02 \times \dots = \dots$$

$$0.02 \div \dots = \dots$$

e 235 m = km

$$235 \times \dots = \dots$$

$$235 \div \dots = \dots$$

Quiz?

10

1 Choose the correct answer:

a $7,000 \div 1,000 = \dots$

(7 or 700 or 7,000 or 0.7)

b $3,627 \div 1,000 = \dots$

(3,627 or 3.627 or 362.7 or 36.27)

c $960 \div 0.01 = \dots$

(96,000 or 9.6 or 960 or 9.600)

d $4.08 \div 0.1 = \dots$

(0.408 or 40.8 or 408 or 4,080)

e $969 \div 10 = \dots$

(9,690 or 0.969 or 9.69 or 96.9)

2 Complete the following:

a $3.07 \div \dots = 30.7$

b $88.1 \div \dots = 0.881$

c $\dots \div 1,000 = 0.029$

d $\dots \div 0.001 = 18,000$

3 Find in different ways:

$$32.8 \text{ km} = 32.8 \div \dots = \dots \text{ m}$$

$$= 32.8 \times \dots = \dots \text{ m}$$

12&13

Lessons

Dividing Decimals by Whole Numbers

Dividing Decimals by Decimals

Dividing Decimals by Whole Numbers

- Assume that the two numbers are **whole numbers** and do the division.
- Place the decimal point in the quotient directly above its position in the **dividend**.

Example: Divide:

a $273.6 \div 8 = 34.2$

$$\begin{array}{r} 8 \overline{) 273.6} \\ \underline{24} \\ 33 \\ \underline{32} \\ 16 \\ \underline{16} \\ 0 \end{array}$$

b $281.76 \div 12 = 23.48$

$$\begin{array}{r} 12 \overline{) 281.76} \\ \underline{24} \\ 41 \\ \underline{36} \\ 57 \\ \underline{48} \\ 96 \\ \underline{96} \\ 00 \end{array}$$

c $71.872 \div 32 = 2.246$

$$\begin{array}{r} 32 \overline{) 71.872} \\ \underline{64} \\ 78 \\ \underline{64} \\ 147 \\ \underline{128} \\ 192 \\ \underline{192} \\ 0 \end{array}$$

Practice 1

Use the **standard algorithm** to divide:

a $5.7 \div 3 =$

b $42.85 \div 5 =$

c $36.66 \div 13 =$

Dividing Decimals by Decimals

- Convert the divisor into a whole number by moving the decimal point to the **right** (by multiplying by 10, 100, or 1,000,...) according to the number of decimal places in the **divisor**.
- Move the decimal point to the **right** in the dividend by the same number of digits moved in the divisor.
- You may need to add **zeros** to the right of the dividend sometimes.
- Perform the division operation.

Example: Divide:

a $17.01 \div 0.7 = 24.3$

$$\begin{array}{r} \text{ } \times 10 \quad \times 10 \\ 170.1 \div 7 \\ 7 \overline{) 170.1} \\ \underline{-14} \\ 30 \\ \underline{-28} \\ 21 \\ \underline{-21} \\ 0 \end{array}$$

b $8.4 \div 0.24 = 35$

$$\begin{array}{r} \text{ } \times 100 \quad \times 100 \\ 840 \div 24 \\ 24 \overline{) 840} \\ \underline{-72} \\ 120 \\ \underline{-120} \\ 0 \end{array}$$

c $2.4 \div 0.025 = 96$

$$\begin{array}{r} \text{ } \times 1,000 \quad \times 1,000 \\ 2,400 \div 25 \\ 25 \overline{) 2,400} \\ \underline{-225} \\ 150 \\ \underline{-150} \\ 000 \end{array}$$

NOTE

- Sometimes we may need to add a decimal point and an addition to complete the division process, as in the following examples:

1 When dividing $462 \div 12$, the quotient is **38** and the remainder is **6**, so we add the decimal point and 0 to the dividend to complete the division ($462 \div 12 = 38.5$).

2 When dividing $97 \div 4$, the quotient is **24** and the remainder is **1**, so we add the decimal point and 0 to the dividend twice to complete the division ($97 \div 4 = 24.25$).

1

$$\begin{array}{r} 12 \overline{) 462.0} \\ \underline{-36} \\ 102 \\ \underline{-96} \\ 60 \\ \underline{-60} \\ 0 \end{array}$$

2

$$\begin{array}{r} 4 \overline{) 97.00} \\ \underline{-8} \\ 17 \\ \underline{-16} \\ 10 \\ \underline{-8} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

Practice 2 Use the **standard algorithm** to divide:

a $183.6 \div 34 = \dots \div \dots = \dots$

Draft

b $78.6 \div 0.6 = \dots \div \dots = \dots$

Draft

c $98.48 \div 0.8 = \dots \div \dots = \dots$

Draft

d $8.395 \div 0.23 = \dots \div \dots = \dots$

Draft

e $9 \div 0.25 = \dots \div \dots = \dots$

Draft

f $2 \div 1.25 = \dots \div \dots = \dots$

Draft

Quiz?

10

1 Choose the correct answer:

a $0.37 \div 0.1 =$ (0.37 or 3.7 or 37 or 370)

b $23.4 \div 18 =$
(23.4 $\div$ 1.8 or 2.34 $\div$ 1.8 or 2.34 $\div$ 0.18 or 0.234 $\div$ 1.8)

c $0.356 \div 0.16 =$
(365 $\div$ 16 or 3650 $\div$ 16 or 3.65 $\div$ 16 or 35.6 $\div$ 16)

2 Use the **standard algorithm** to divide:

a $8.1 \div 3 =$

b $31.8 \div 12 =$

3 Use the **standard algorithm** to divide:

a $9.52 \div 0.7 =$

b $62.7 \div 0.12 =$



Unit

6

Numerical Expressions and Patterns

Concept
6.1

Evaluating Numerical Expressions and Patterns

Lessons

1-4

Order of Mathematical Operations

Numerical Expressions with Parentheses

Writing Expressions to Represent Scenarios

Identifying Numerical Patterns

Learning Objectives:

By the end of these lessons, the student will be able to:

- Use the order of operations to evaluate expressions with whole numbers and decimals.
- Identify how grouping symbols affects the order of operations.
- Evaluate an expression with grouping symbols.
- Evaluate expressions with grouping symbols.
- Write an expression to represent a written scenario.

1-4 Lessons

Order of Mathematical Operations
Numerical Expressions with Parentheses
Writing Expressions to Represent Scenarios
Identifying Numerical Patterns

Basic Order of Operations

Perform the operations inside parentheses if any

Multiply or divide from left to right

Add or subtract from left to right

For example: Use the **order of operations** to evaluate the expression:

1 Perform the subtraction **inside the parentheses**.

2 Perform the **division** operation.

3 Perform the **multiplication** operation.

4 Perform the **addition** operation.

$$\begin{aligned} & 45 \div 5 + (9 - 3) \times 4 \\ &= 45 \div 5 + 6 \times 4 \\ &= 9 + 6 \times 4 \\ &= 9 + 24 \\ &= 33 \end{aligned}$$

Practice 1

Use the **order of operations** to evaluate each expression, one step at a time:

a $597.8 \div 6.1 + 13 \times 1.7$

=
=
=
=

b $56.5 \times 2.3 - 15 + 12.7$

=
=
=
=

c $82.43 \times 3.1 + 4.05 \div 0.01 - 2.5$

=
=
=
=

d $90.7 + 116.6 \times 0.1 \times 2 - 20$

=
=
=
=

e $(14.5 + 12.3 \div 0.01) - 9.8$

=
=
=
=

f $(45.42 - 17.11) \times (82.9 + 17.1)$

=
=
=
=

Expanded Order of Operations

Operations within
parentheses ()

- 1 Multiply or divide from left to right
- 2 Add or subtract from left to right

Operations within
brackets []

- 1 Multiply or divide from left to right
- 2 Add or subtract from left to right

Operations outside of
parentheses or brackets

- 1 Multiply or divide from left to right
- 2 Add or subtract from left to right

For example: Use the **order of operations** to evaluate the following expression:

a Operations within parentheses () $\rightarrow 3.5 \times [1.4 \div (7.5 + 2.5) - 0.04] + 2.84$

b Operations within brackets [] $\rightarrow = 3.5 \times [1.4 \div 10 - 0.04] + 2.84$

c Operations outside of brackets $\rightarrow = 3.5 \times 0.1 + 2.84$

1 Division $\rightarrow = 3.5 \times [0.14 - 0.04] + 2.84$

2 Subtraction $\rightarrow = 3.5 \times 0.1 + 2.84$

1 Multiplication $\rightarrow = 0.35 + 2.84 = 3.19$

2 Addition

Practice 2 Use the **order of operations** to evaluate each expression:

a $2.5 \div [0.5 \times (4.3 - 4.2)] - 2.4$

=
=
=
=

b $[8.4 \div (3.6 + 0.4) \times 3] + 2.7$

=
=
=
=

c $7.5 \times [4 - (7.6 + 2.4) \times 0.2]$

=
=
=
=

d $[(2.5 - 0.1) \times (0.07 + 0.03)] \div 1.2$

=
=
=
=

NOTE

- Changing the **order of operations** leads to a change in the value.
- Note the following examples:

a $10 - 0.1 \times 1.6 + 2$
 $= 10 - 0.16 + 2$
 $= 9.84 + 2$
 $= 11.84$

b $10 - 0.1 \times (1.6 + 2)$
 $= 10 - 0.1 \times 3.6$
 $= 10 - 0.36$
 $= 9.64$

c $(10 - 0.1) \times (1.6 + 2)$
 $= 9.9 \times (1.6 + 2)$
 $= 9.9 \times 3.6$
 $= 35.64$

Practice 3 Use the **order of operations** to evaluate each expression:

a $30 \times 2.5 + 47.18 - 3.12 \div 0.1$

=
 =
 =
 =

b $30 \times (2.5 + 47.18 - 3.12 \div 0.1)$

=
 =
 =
 =

c $30 \times [2.5 + (47.18 - 3.12) \div 0.1]$

=
 =
 =
 =

d $(30 \times 2.5 + 47.18 - 3.12) \div 0.1$

=
 =
 =
 =

Writing Expressions to Represent Scenarios

Note the following mathematical expressions:

Add
 6.4 and 2.7
 $6.4 + 2.7$

Subtract
 2.4 from 8.2
 $8.2 - 2.4$

Multiply
 9.2 by 0.1
 9.2×0.1

Divide
 83.2 by 6.7
 $83.2 \div 6.7$

Example: Write an expression that matches the **clues**. Then, evaluate the expression:

Subtract 3.5 from 7.2 and divide the result by 10.
 Parentheses are used if the first operation is subtraction or addition.
 $(7.2 - 3.5) \div 10 = 3.7 \div 10 = 0.37$

Multiply 2.5 by 0.1 and add 3.2.
 No parentheses are needed if the first operation is multiplication or division.
 $(2.5 \times 0.1) + 3.2 = 0.25 + 3.2 = 3.45$

Multiply 217 by 0.01 and subtract the result from 4.8, then divide by 10.
 $(4.8 - 217 \times 0.01) \div 10 = (4.8 - 2.17) \div 10 = 2.63 \div 10 = 0.263$

Parentheses are placed to perform **subtraction before division**, and they are not placed for multiplication because it is natural that it is performed first.

Keywords



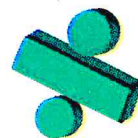
Add
Plus
Sum
Total



Subtract
Difference
Take away
Minus



Multiply
Times
Double (X 2)
Twice (X 2)
Triple (X 3)
Product



Divide
Half ($\div 2$)
Third ($\div 3$)
Quotient
Distribute

Practice 4

For each problem, write an expression that matches the clues. Then, evaluate the expression:

- a Subtract 3.1 from 4.62. Then, multiply the result by 2.

.....

.....

.....

.....

.....

- b Divide 93 by 0.3 and then add 114.7. After that, divide the result by 5.

.....

.....

.....

.....

.....

- c Add 30.4, 87, and 17.5. Then, subtract the result from 224.7. Multiply by 100.

.....

.....

.....

.....

.....

- d Multiply 7.6 by 100. Next, subtract 34.3. Then, add 12.4. Finally, divide the result by 0.1.

.....

.....

.....

.....

.....

- e Find the difference between 10 and 9.27. Multiply by the sum of 54 and 46. Then, divide 1,168 by the result.

Practice 5 For each problem, write an expression that matches the scenario. Then, evaluate the expression:

- a Kamel is saving money to buy a mobile phone. He already has 1,000 LE. He works two jobs: at the first job, he saves 50 LE per week, and at the second job, he saves 30 LE per week. He saves all this money for 4 weeks. How much money does Kamel have in total after 4 weeks?

- b Mounir is lifting weights to train for a competition. He puts 4 weights on his bar: two large weights and two small weights. Each large weight has a mass of 33.75 kilograms. Each small weight is 17.5 kilograms lighter than each large weight. What is the total mass of the weights he lifted?

Numerical Pattern

It is a sequence of numbers according to a certain rule.

Pattern rule: It is the relationship between the number and the number **before** it.

Example: Note the following patterns:

3 , 6 , 9 , 12 , 15 , 18 , 21 ,

Each number = **the previous number + 3**

The pattern rule is: $n + 3$ (the variable n represents the **previous number**)

2 , 4 , 8 , 16 , 32 , 64 , 128 ,

Each number = **the previous number $\times 2$**

The pattern rule is: $n \times 2$ (the variable n represents the **previous number**)

Practice 6 Write the **rule** for each pattern with a variable. Then, complete the pattern by finding the **missing values**:

- a) 5, 10, 15, 20, 25, 30, Rule :
- b) 1, 2, 4, 8, 16, 32, Rule :
- c) 45, 39, 33, 27, 21, Rule :
- d) 28, 25, 22, 19, 16, 13, Rule :

Input/Output Tables

Pattern rule: It is the relationship between the **input number** and the **output number**.

Note the following patterns:

Input	Output
1	5
2	10
3	15
4	20

Output number = **Input number** $\times$ 5
Rule: $n \times 5$

Input	Output
8	2
16	4
24	6
32	8

Output number = **Input number** $\div$ 4
Rule: $n \div 4$

Practice 7 Write the **rule** for each pattern with a variable. Then, complete the pattern by finding the **missing values**:

a

Input	Output
8	2
12	3
.....	4
.....	5
24	.....

Rule:

b

Input	Output
2	6
3	9
4	.....
.....	15
.....	18

Rule:

c

Input	Output
6	1
8	3
10	5
12	.....
.....	9

Rule:

d

Input	Output
6	4
8	6
10	8
.....	10
14	.....

Rule:



10

1 Choose the correct answer:

- a The first operation that should be done in: $56.5 \times 2.3 - 15 + 12.7$
is (adding **or** subtracting **or** multiplying **or** dividing)
- b The first operation that should be done in: $(14.5 - 12.3) \div 0.01 + 9.8$
is (adding **or** subtracting **or** multiplying **or** dividing)
- c The first operation that should be done in: $45.42 - 17.11 \times 82.9 + 17.1$
is (adding **or** subtracting **or** multiplying **or** dividing)

2 Use the **order of operations** to evaluate the following expression, one step at a time:

$$2.5 \div [5 \times (6.8 - 6.7)] - 0.9$$

=

=

=

3 Subtract **4.7** from **9.62**. Then, multiply the result by **3.5**.

.....

.....

.....

.....

4 Write the **rule** for the following pattern with a variable. Then, complete the pattern by finding the **missing values**.

1, 6, 11, 16, 21, Rule

Theme 1

Unit 1

Concept 1

Lesson 1

Decimals to the Thousandths Place

- 1
 - a 0.2
 - b 0.05
 - c 0.13
 - d 0.004
 - e 0.085
 - f 0.792
 - g 2.3
 - h 41.08
 - i 32.74
 - j 50.016
 - k 961.205
- 2
 - a Nine tenths
 - b Six hundredths
 - c Sixty-nine hundredths
 - d Forty-five thousandths
 - e Eight hundred twenty-four thousandths
 - f Six and eight tenths
 - g Twenty-five and eight hundredths
 - h Nine hundred forty-five and twenty-five hundredths
 - i Twenty and thirty-six thousandths
 - j Three hundred fifty-eight and one hundred twenty-four thousandths
- 3
 - a Tenths, 0.9
 - b Thousands, 7,000
 - c Tens, 0
 - d Ones, 5
- 4
 - a Hundredths, 0.06
 - b Hundreds, 700
 - c Thousandths, 0.009
 - d Ten Millions, 30,000,000
 - e Tenths, 0

Quiz

- 1
 - a 0.3
 - b Thousandths
 - c 0.07
- 2
 - a Sixty-three and seven hundred five thousandths
 - b 24.048
 - c Hundredths, 0.04

- 3
 - a → 3
 - b → 1
 - c → 4
 - d → 2

Lessons 2&3

Place Value Shuffle & Composing and Decomposing Decimals

- 1
 - a 6, increased from 6 to 60
8, increased from 80 to 800
3, increased from 300 to 3,000
386, increased from 386 to 3,860
 $386 \times 10 = 3,860$
 - b 5, increased from 0.5 to 5
2, increased from 2 to 20
2.5, increased from 2.5 to 25
 $2.5 \times 10 = 25$
- 2
 - a 5, decreased from 5 to 0.5
1, decreased from 10 to 1
9, decreased from 900 to 90
915, decreased from 915 to 91.5
 $915 \div 10 = 91.5$
 - b 7, decreased from 0.7 to 0.07
8, decreased from 8 to 0.8
8.7, decreased from 8.7 to 0.87
 $8.7 \div 10 = 0.87$
- 3
 - a 756.5
 - b 8.319
 - c 35.87
 - d 95.24
 - e 2,540
 - f 36
- 4
 - a $34.527 = 30 + 4 + 0.5 + 0.02 + 0.007$
 $= 34 + 0.527$
 $= 30 + 4 + 0.527$
 - b $21.045 = 20 + 1 + 0.04 + 0.005$
 $= 20 + 1 + 0.045$
 $= 21 + 0.045$
 - c $14.932 = 10 + 4 + 0.9 + 0.03 + 0.002$
 $= 14 + 0.932$
 $= 14 + 0.9 + 0.03 + 0.002$
 - d $231.128 = 200 + 30 + 1 + 0.1 + 0.02 + 0.008$

Guide Answers

$$= 231 + 0.128$$

$$= 231 + 0.1 + 0.02 + 0.008$$

e $508.17 = 500 + 8 + 0.1 + 0.07$

$$= 508 + 0.17$$

$$= 508 + 0.1 + 0.07$$

5 a 230.507

b 65.089

c 24.075

d 65.729

e 125.87

Quiz

1 a 361.7

b 62.48

c 20.156

d 508.207

2 a $\bullet 24 + 0.15$ $\bullet 20 + 4 + 0.15$ $\bullet 24 + 0.1 + 0.05$

b Thirty and twenty-five thousandths

3 a $\rightarrow 3$

b $\rightarrow 1$

c $\rightarrow 2$

Lesson 4

Comparing Decimals

1 a $<$

b $<$

c $<$

d $>$

e $>$

f $=$

2 a 1.440

b 1.3

3 a 20.001

b 3.009

4 53.6, 35.92

5 25.009, 2.509

6 $45.12 < 45.21 < 51.24 < 54.12 < 54.21$

7 $100.12 > 21.010 > 12.001 > 10.012 > 2.011$

Quiz

1 a $<$

b $>$

c $>$

2 $251.72 < 257.12 < 257.21 < 725.12$

3 $2.025 - 2.008 - 1.99 - 0.555$

Lesson 5

Rounding Decimals

1 a 3

b 66

c 20

2 a 0.7

b 45.5

c 4

3 a 6.36

b 0.25

c 10

4 a 754

b 56.3

c 60

d 782.48

e 1,000

f 0.04

5 a $56 / 56.3 / 56.28$

b $572 / 572.1 / 572.09$

c $1 / 0.9 / 0.90$ d $50 / 50.1 / 50.10$

Quiz

1 a Tenth

b Ten

c Hundredth

d Ten

2 a 24

b 59.5

c 369.25

d 0

e 20

f 0.09

Concept 2

Lessons 6&7

Estimating Decimal Sums & Modeling Decimal Addition

1 Answer by yourself.

2 a $5 + 0.95 + 21 + 0.002$

$$5 + 1 + 21 + 0 = 27$$

b $6 + 0.552 + 82 + 0.495$

$$6 + 0.5 + 82 + 0.5 = 89$$

c $12 + 0.954 + 3 + 0.45$

$$12 + 1 + 3 + 0.5 = 16.5$$

3 a $2 + 4 = 6$

b $3.45 + 8.09 = 11.54$

c $10 + 4.6 = 14.6$

d $4.982 + 5.019 = 10.001$

4 Estimate: $54 + 46 = 100$

Yes, they have enough money.

5 a 0.7

b 0.75

c 0.43

d 1.52

e 1.43

f 1.63

6 a $0.25 + 0.47 = 0.72$

b $0.93 + 0.79 = 1.72$

7 a 3.89

b 4.135

c 6.858

d 128.44

e 234.72

- 8 a 48.126 b 34.548 c 171.28
d 41.39 e 61.89
9 a 7 b 11 c 44 d 129
10 $92.61 + 147.7 = 240.31$ km

Quiz

- 1 a $1 + 0 = 1$ b $3.2 + 12.6 = 15.8$
c $55.76 + 36.96 = 92.72$ d 17
2 241.732 3 $93.5 + 24.6 = 118.1$ kg

Lessons 8-11

Modeling Subtracting Decimals - Estimating Decimal Differences - Subtracting to the Thousandths Place - Decimal Story Problems

- 1 a 0.3 b 0.45 c 0.13
d 0.42 e 0.18 f 0.63
2 a $1.55 - 0.73 = 0.82$ b $0.46 - 0.46 = 0$
3 a 9.71 b 8.385 c 7.227
d 138.29 e 241.655
4 a 68.398 b 24.83 c 89.655
d 37.82 e 49.921
5 a 33 b 37 c 325 d 34
6 a 0.5 b 0.5 c 0.5 d 0
7 a 4.9 b 264 c 2.6 d 0.89
8 $67.3 - 11.7 = 55.6$ m
9 $5.25 + 6.8 = 12.05$ kg
10 $16.7 + 16.7 = 33.4$ km

Quiz

- 1 a 13.82 b 30.06
c 438 d 5
2 a 204.334 b 65.912 c 71.408
3 $675.5 - 239.45 = 436.05$ km

Unit 2

Concept 1

Lesson 1

Expressions, Equations, and Variables

- 1 a Equation b Expression c Equation
d Expression e Other f Equation
a Expression b Other
2 a $w = 25.15 - 14.5$
b $y = 45 - 28$ c $m = 4,200 - 3,350$
d $a = 750,250 + 90,990$

Quiz

- 1 a equation b mathematical expression
c other
2 a $A = 38 - 23$ 3 b $B = 12 - 7$

Lessons 2&3

Variables in Equations & Telling Stories with Numbers

- 1 a $P = 10.224 - 8.235$
 $P = 1.989$
b $t = 2.445 + 0.26$
 $t = 2.705$
c $h = 6.82 - 1.023$
 $h = 5.797$
d $v = 100.01 - 42.809$
 $v = 57.201$
e $m = 9.271 - (5.52 + 2.041)$
 $m = 9.271 - 7.561$, $m = 1.71$
f $a = (2.377 + 3.1) - 1.52 = 5.477 - 1.52$
 $a = 3.957$
2 Answer by yourself.

Guide Answers

Quiz

- a $m = 5.2 - 3.7 = 1.5$
 b $h = 4.89 + 3.2 = 8.09$
 c $a = 9.9 - 3.6 = 6.3$
- a 1.3 b 1.1
- a $= 12 + 15$ a $= 27$ LE

Concept 2

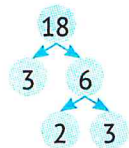
Lesson 4

Prime Factorization

- a $16 = 2 \times 2 \times 2 \times 2$
 b $20 = 5 \times 2 \times 2$
 c $36 = 2 \times 2 \times 3 \times 3$
 d $48 = 2 \times 3 \times 2 \times 2 \times 2$

Quiz

- a 2 b 3
 c 2, 3, 5
- a $18 = 2 \times 3 \times 3$
- a 12 b 30



Lesson 5

Greatest Common Factors (GCF)

- a 14 b 9
 c 4 d 16
- GCF = 5

Greatest number of equal groups = 5 groups.

Quiz

- a 3 b 2 c 1
- $12 = 2 \times 2 \times 3$
 $18 = 2 \times 3 \times 3$ GCF $= 2 \times 3 = 6$

- $20 = 2 \times 2 \times 5$
 $15 = 5 \times 3$ GCF = 5
 Largest number is 5
 Number of red apples $= 20 \div 5 = 4$ apples.
 Number of green apples $= 15 \div 5 = 3$ apples.

Lessons 6&7

Identifying Multiples & Least Common Multiple (LCM)

- a 0 / 2 / 4 / 6 / 8 / 10 / 12 / 14 / 16 / 18
 b 0 / 5 / 10 / 15 / 20 c 0 / 10 / 20
- a 0 / 3 / 6 / 9 / 12 / 15 / 18 / 21 / 24 / 27
 b 0 / 6 / 12 / 18 / 24 / 30
 c 0 / 9 / 18 d 0 / 18
- Answer by yourself.
- a GCF = 3 , LCM = 18
 b GCF = 5 , LCM = 30
 c GCF = 4 , LCM = 8
 d GCF = 3 , LCM = 36

Quiz

- a 8 b 10 c 0

- $6 = 2 \times 3$
 $18 = 2 \times 2 \times 3$
 GCF = 2
 LCM $= 2 \times 2 \times 3 \times 2 = 24$
- $6 \times 5 = 2 \times 3 \times 5$
 $3 \times 14 = 2 \times 3 \times 7$
 GCF $= 2 \times 3 = 6$
 LCM $= 2 \times 3 \times 5 \times 7 = 210$

Lesson 8

Factors or Multiples?

- a GCF = 4 , LCM = 60 b GCF = 8 , LCM = 48
 c GCF = 5 , LCM = 90 d GCF = 9 , LCM = 54
- LCM = 24 days. 3 GCF = 6 containers

Quiz

- 1 a multiple b factor c 1
d 1 e 14

2 $8 = 2 \times 2 \times 2$

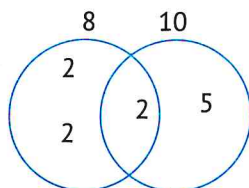
$10 = 2 \times 5$

GCF = 2

LCM = $2 \times 2 \times 2 \times 5 = 40$

- 3 The LCM for 10 and 8 is 40.

They will be watered together after 40 days.



Unit 3

Concept 1

Lesson 1

Using the Area Model to Multiply

- 1 a 988 b 2,232
c 22,932 d 22,274
- 2 a $8 \times 527 = 4,216$ b $59 \times 28 = 1,652$
c $43 \times 856 = 36,808$ d $98 \times 603 = 59,094$
- 3 a $187 \times 6 = 1,122$ km
b $60 \times 105 = 6,300$ km

Quiz

1 65×23

$1,200 + 180 + 100 + 15$

$= 1,495$

	60	5
20	1,200	100
3	180	15

2 509×28

$10,000 + 4,000 + 180 + 72$

$= 14,252$

	500	9
20	10,000	180
8	4,000	72

3 49×5

$200 + 45 = 245$ eggs

	40	9
5	200	45

Lesson 2

The Distributive Property of Multiplication

1 a $7 \times 63 = 7 \times (60 + 3) = (7 \times 60) + (7 \times 3)$

$= 420 + 21 = 441$

b $9 \times 208 = 9 \times (200 + 8)$

$= (9 \times 200) + (9 \times 8)$

$= 1,800 + 72$

$= 1,872$

c $24 \times 38 = (20 + 4) \times (30 + 8)$

$= (20 \times 30) + (20 \times 8) + (4 \times 30) + (4 \times 8)$

$= 600 + 160 + 120 + 32 = 912$

d $82 \times 107 = (80 + 2) \times (100 + 7)$

$= (80 \times 100) + (80 \times 7) + (2 \times 100) +$

(2×7)

$= 8,000 + 560 + 200 + 14 = 8,774$

e $62 \times 142 = (60 + 2) \times (100 + 40 + 2)$

$= (60 \times 100) + (60 \times 40) + (60 \times 2) + (2$

$\times 100) + (2 \times 40) + (2 \times 2)$

$= 6,000 + 2,400 + 120 + 200 + 80 + 4 =$

$8,804$

f $43 \times 217 = (40 + 3) \times (200 + 10 + 7)$

$= (40 \times 200) + (40 \times 10) + (40 \times 7)$

$+ (3 \times 200) + (3 \times 10) + (3 \times 7)$

$= 8,000 + 400 + 280 + 600 + 30 + 21 =$

$9,331$

2 - 1st way: $74 \times 12 = (70 + 4) \times (10 + 2) = 888$

- 2nd way: $74 \times 12 = (70 + 4) \times (6 + 6) = 888$

- 3rd way: $74 \times 12 = (40 + 30 + 4) \times (10 + 2) = 888$

3 a $8 \times 37 = 8 \times (30 + 7) = 240 + 56 = 296$

b $5 \times 264 = 5 \times (200 + 60 + 4)$

$= (5 \times 200) + (5 \times 60) + (5 \times 4)$

$= 1,000 + 300 + 20 = 1,320$

c $26 \times 73 = (20 + 6) \times (70 + 3)$

Guide Answers

$$= (20 \times 70) + (20 \times 3) + (6 \times 70) + (6 \times 3)$$

$$= 1,400 + 60 + 420 + 18 = 1,898$$

4 a $24 \times 53 = 1,272$ b $28 \times 47 = 1,316$

Quiz

1 a 24×37

b 7×2

2 35×27

$$= 945$$

3 $(40 \times 600) + (40 \times 20)$

$$+ (40 \times 7) + (3 \times 600)$$

$$+ (3 \times 20) + (3 \times 7)$$

$$627 \times 43 = 26,961$$

	30	5
20	600	100
7	210	32

	600	20	7
40	24,000	800	280
3	1,800	60	21

Concept 2

Lessons 3-5

Multiplying by a 2-Digit Number Using Algorithm – Multiplying Multi-Digit Numbers & Multiplication Problems in the Real World

1 a 2,028

b 2,331

c 1,748

d 2,438

2 a 17,856

b 96,824

c 157,941

d 558,744

3 a 2,925

b 13,104

c 38,266

d 9,331

e 54,075

4 a 2,232

b 7,416

c 11,128

d 8,774

5 a Actual product: 3,551, Estimation: 3,500

b Actual product: 6,786, Estimation: 8,000

6 a $753 + 402 = 1,155$ kebabs,

$$1,155 \times 83 = 95,865 \text{ g}$$

b $170 \times 3 \times 18 = 9,180 \text{ g}$

c $250 + 15 + 30 = 295 \text{ mL}$

$$295 \times 18 = 5,310 \text{ mL}$$

Quiz

1 a

	600	20	7
40	24,000	800	280
3	1,800	60	21

$$3,000 + 600 + 150 + 600 + 120 + 30 = 4,500$$

b 256

$$\begin{array}{r} \text{X} \quad 33 \\ 256 \\ \hline 768 \\ + \quad 7,680 \\ \hline 8,448 \end{array}$$

c $(70 + 5) \times (200 + 40 + 8)$

$$= (70 \times 200) + (70 \times 40) + (70 \times 8)$$

$$= (5 \times 200) + (5 \times 40) + (5 \times 8)$$

$$= 14,000 + 2,800 + 560 + 1,000 + 80 + 40$$

$$= 18,600$$

2

$$\begin{array}{r} 189 \\ \text{X} \quad 34 \\ \hline 756 \\ + \quad 5,670 \\ \hline 6,426 \end{array} \quad \rightarrow \quad \begin{array}{r} 200 \\ \text{X} \quad 30 \\ \hline 6,000 \end{array}$$

Theme 2

Unit 4

Concept 1

Lessons 1&2

Dividing by a Two-Digit Number & Estimating Quotients

- 1 a 15 (R1) b 69 (R6)
c 407 d 1,364
- 2 a 52 (R10) b 24 (R11) c 123
d 126 (R8) e 234
- 3 a 243 b 144
- 4 a 37 (R14), 40, reasonable
b 40 (R 22), 40, reasonable
c 312, 300, reasonable

Quiz

- 1 a 9 b 3 c 55 d 2
- 2 $673 \div 5 = 134$ (R3) 3 $4,000 \div 40 = 100$

Concept 2

Lessons 3-5

Using the division Algorithm - The Relation Between Division and Multiplication & Multistep Story Problems

- 1 a 157 b 649 (R2)
c 1,188 (R1) d 1,203 (R4)
- 2 a 23 b 1,048 (R16)
c 203 (R12) d 211 (R27)
- 3 a $350 \div 12 = 29$ (R2), Number of bags = 30
b Paper Palace = $3 \times 762 = 2,286$ reams
Office Supply = $2,286 - 143 = 2,143$ reams
Sum = $762 + 2,286 + 2,143 = 5,191$ reams
c Red pens = $5 \times 24 = 120$ pens

Guide Answers

Blue pens = $4 \times 12 = 48$ pens

Each friend will get = $(120 + 48) \div 8$

= $168 \div 8 = 21$ pens

d $72 \times 55 = 3,960$ books

$3,960 \div 12 = 330$ books

Quiz

1 a 164

$$\begin{array}{r} 125 \\ 5 \overline{) 625} \\ \underline{- 5} \\ 12 \\ \underline{- 10} \\ 25 \\ \underline{- 25} \\ 00 \end{array}$$

$$\begin{array}{r} 124 \\ 8 \overline{) 992} \\ \underline{- 8} \\ 19 \\ \underline{- 16} \\ 32 \\ \underline{- 32} \\ 00 \end{array}$$

2 367

$$\begin{array}{r} 15 \\ 15 \overline{) 5,505} \\ \underline{- 45} \\ 100 \\ \underline{- 90} \\ 105 \\ \underline{- 105} \\ 000 \end{array}$$

3 $6501 \div 33 = 197$ books.

$$\begin{array}{r} 197 \\ 33 \overline{) 6501} \\ \underline{- 33} \\ 320 \\ \underline{- 297} \\ 231 \\ \underline{- 231} \\ 000 \end{array}$$

Unit 5

Concept 1

Lessons 1&2

Multiplying by Powers of Ten & Multiplying Decimals by Whole Numbers

- 1 a 90 / 900 / 9,000 / 0.9 / 0.09 / 0.009
b 12 / 120 - 1,200 / 0.12 / 0.012 / 0.0012
c 235, 2350, 23500, 2.35, 0.235, 0.0235
- 2 a 42 b 36 c 0.074
d 124.5 e 6.021 f 1.414
g 20 h 0.13 i 0.012
- 3 30 / 300 / 3,000 / 3 / 0.3 / 0.03 / 0.003
300 / 3,000 / 30,000 / 30 / 3 / 0.3 / 0.03
3 / 30 / 300 / 0.3 / 0.03 / 0.003 / 0.0003
- 4 a 78.2 b 7.82 c 78.2
d 7.82 e 0.782 f 0.782
- 5 a 1.6 b 0.56 c 0.081
d 8.4 e 2.34 f 72.56
g 0.71 h 0.2 i 1.5

Quiz

- 1 a 327 b 8.5
c 0.028 d 62.79
- 2 a 0.35 b 1.2 c 0.081
- 3 a 61.64 b 615.4 c 6.154

Lessons 3&4

Multiplying Tenths by Tenths & Multiplying Using the Area of Rectangle Model

- 1 a 1 b 0.27 c 0.14
d 0.75 e 0.34

- 2 a 2.16 b 15.12 c 202.02

Quiz

- 1 a 0.21 b 0.72
- 2 a 0.2 b 0.24 3 4.905

Lessons 5&6

Multiplying Decimals through the Hundredths Place & Multiplying Decimals through the Thousandths Place

- 1 [$24 \times 13 = 72 + 240 = 312$]
a 31.2 b 31.2 c 3.12
d 0.312 e 0.312 f 312
g 3.12 h 0.0312
- 2 a 14.76 b 452.4 c 4.625
d 178.02 e 7.384 f 10.98
g 10.5882 h 84.336
- 3 a 2.45 b 25.84
c 3.234 d 0.8676

Quiz

- 1 a 1.715 b 171.5 c 17.15
- 2 a 10.03 b 4.272 c 444.862
- 3 247.76

Lessons 7-9

Decimals and the Metric System - Measurement, Decimals, and Powers of Ten & Solving Multistep Story Problems

- 1 a $3,465 \times 0.001 = 3.465$
b $24 \times 0.01 = 2.45$
c $0.7 \times 100 = 70$ d $7.56 \times 10 = 75.6$

e $25,378 \times 0.001 = 25.378$

f $56.89 \times 1,000 = 56,890$

g $56 \times 0.001 = 0.056$

2 a She needs $= 1.35 \times 4 = 5.4$ m

b $320 + 250 = 570$ mL

The remainder $= 1,000 - 570 = 430$ mL $= 0.43$ L

c Ehab grew $= 150 - 138.2 = 11.8$ cm

d $3.6 \times 7.25 = 26.1$ cm², $5.5 \times 8 = 44$ cm²

The difference $= 44 - 26.1 = 17.9$ cm²

Quiz

1 a 2.575

b 6.48

c 75

d 12,870

2 a 482.9

b 9.5

c 6,700

d 0.125

3 3.25 kg $+ 1.75$ kg $= 5$ kg $= 5000$ g

Concept 2

Lessons 10-11

Dividing by Powers of Ten & Patterns and Relationships in Powers of Ten

1 a $0.9 / 0.09 / 0.009 / 90 / 900 / 9,000$

b $0.142 / 0.0142 / 0.00142 / 14.2 / 142 / 1,420$

c $23 / 2.3 / 0.23 / 2,300 / 23,000 / 230,000$

2 a 0.8

b 67

c 57

d 216

e 0.071

f 1,280

3 a 10

b 0.001

c 0.1

d 0.1023

e 2,500

f 20

4 a 465

$4.65 \times 100 = 465$

$4.65 \div 0.01 = 465$

b 5,600

$5.6 \times 1,000 = 5,600$

$5.6 \div 0.001 = 5,600$

c 420

$42 \times 10 = 420$

$42 \div 0.1 = 420$

d 20

$0.02 \times 1,000 = 20$

$0.02 \div 0.001 = 20$

e 0.235

$235 \times 0.001 = 0.235$

$235 \div 1,000 = 0.235$

Quiz

1 a 7

b 3.627

c 96,000

d 40.8

e 96.9

2 a 0.1

b 100

c 29

d 18

3 $0.001 = 32,800$

$1,000 = 32,800$

Lessons 12&13

Dividing Decimals by Whole Numbers &

Dividing Decimals by Decimals

1 a 1.9

b 8.57

c 2.82

2 a 5.4

b 131

c 123.1

d 36.5

e 36

f 1.6

Quiz

1 a 3.7

b $2.34 \div 1.8$

c $35.6 \div 16$

2 a 2.7

b 2.65

3 a 13.6

b 522.5

Unit 6

Concept 1

Lessons 1-4

Order of Mathematical Operations
– Numerical Expressions with
Parentheses – Writing Expressions
to Represent Scenarios & Identifying
Numerical Patterns

- 1 a 120.1 b 127.65 c 658,033
 d 94.02 e 1234.7 f 2,831
- 2 a 47.6 b 9
 c 15 d 0.2
- 3 a 90.98 b 554.4
 c 13,293 d 1,190.6
- 4 a $(4.62 - 3.1) \times 2 = 3.04$
 b $(114.7 + 93 \div 0.3) \div 5 = 84.94$
 c $[224.7 - (30.4 + 87 + 17.5)] \times 100 = 8,980$
 d $(7.6 \times 100) + 34.3 + 12.4 \div 0.1 = 7,381$
 e $1.168 \div [(10 - 9.27) \times (46 + 54)] = 16$

- 5 a $1,000 + (30 + 50) \times 4 = 1,320$
 b Small weight = $33.75 - 17.5 = 16.25$
 The total mass = $2 \times (33.75 + 16.25)$
 $= 2 \times 50 = 100 \text{ kg}$
- 6 a 35, 40, 45, Rule: $n + 5$
 b 64, 128, 256, Rule: $n \times 2$
 c 15, 9, 3, Rule: $n - 6$
 d 10, 7, 4, Rule: $n - 3$
- 7 a 16, 20, 6, Rule: $n \div 4$
 b 12, 5, 6, Rule: $n \times 3$
 c 7, 14, Rule: $n - 5$
 d 12, 12, Rule: $n - 2$

Quiz

- 1 a multiplying b subtracting
 c multiplying
- 2 4.1
- 3 $(9.62 - 4.7) \times 3.5 = 17.22$
- 4 26,31 Rule: $n + 5$

PONY

2026

MATH

Exercises Book



5

Primary
First Term

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Number Sense and Operations

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Theme

1

Number Sense and Operations

Theme Units

Unit

1

Decimal Place Value and Computation

Concept 1.1: Decimals to the
Thousandths Place

Concept 1.2: Adding and Subtracting
Decimals

Unit

2

Number Relationships

Concept 2.1: Expressions,
Equations, and the
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Concept 2.2: Factors and Multiples

Unit

3

Multiplication with Whole Numbers

Concept 3.1: Models for
Multiplication

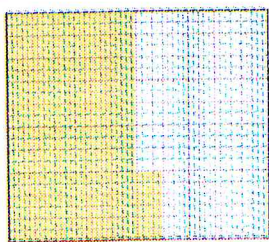
Concept 3.2: Multiplying 4-Digit
Numbers by 2-Digit
Numbers

Unit 1 Decimal Place Value and Computation

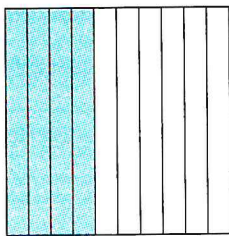
Concept 1.1 Decimals to the Thousandths Place

Lesson 1

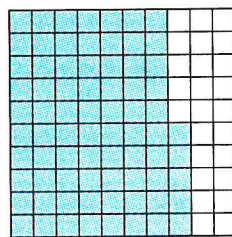
1 Match each decimal model to the decimal number it represents:



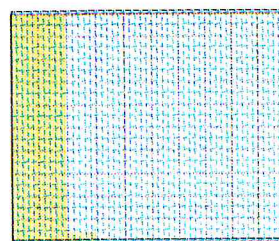
1



2



3



4

a
0.400

b
0.205

c
0.530

d
0.750

2 Write the following numbers in the standard form:

- 1 Five tenths:
- 2 Three hundredths:
- 3 Sixteen hundredths:
- 4 Twenty-nine thousandths:
- 5 Five and three hundredths:
- 6 Fifty-six and seventeen hundredths:
- 7 One hundred fifteen and seventy-six hundredths:
- 8 Three thousand, three hundred and three tenths:
- 9 Three million, twenty-six thousand, seventy-five and one hundred seventy-two thousandths:
- 10 Fifteen million, seven hundred thousand, five and seventeen hundredths:

3 Write the following numbers in the **word form**:

- 1 0.8:
- 2 0.23:
- 3 0.316:
- 4 15.3:
- 5 5,328.96:
- 6 13.629:
- 7 3,120,000.03:

4 Complete the following:

- 1 Three hundred fifty-nine million, forty thousand, six and seventy-nine hundredths (**in standard form**):
- 2 Six milliard, seventy thousand, ninety-six and five thousandths (**in standard form**):
- 3 9,200,000,065.027 (**in word form**):
- 4 205,009.04 (**in word form**):
- 5 In 457,258,350.68, the digit 6 is in the place, and its value is
- 6 In 500,725,235.102, the digit in the **Hundredths** is, and its value is
- 7 The value of 9 in the **Hundredths** place is
- 8 If the value of 3 is 0.3, then its place value is
- 9 $0.523 =$ Thousandths, Hundredths, Tenths
- 10 = 7 Tenths, 9 Thousandths

5 Choose the correct answer:

- 1 Seven milliard, fifty thousand and seven hundredths =
(7,050.07 or 7,000,050.07 or 7,000,050,000.07 or 7,000,500,000.07)
- 2 56,000,500.035 (in word form):
(fifty-six thousand, five hundred and and thirty-five thousandths
or fifty-six million, five hundred and thirty-five thousandths
or fifty-six million, five hundred thousand and thirty-five thousandths
or fifty-six million, five hundred thousand and thirty-five hundredths)
- 3 The place value of 5 in 528,239.247 is the
(Hundred Millions or Hundred Thousands or Hundreds or Hundredths)
- 4 The value of 1 in 247,369.215 is
(0.001 or 0.01 or 0.1 or 1)
- 5 If the value of 7 is 0.7, then its place value is the
(Tenths or Ones or Thousandths or Hundredths)
- 6 If the place value of 3 is the Thousandths, then its value is
(0.003 or 0.03 or 0.3 or 3,000)
- 7 $4\frac{45}{100} =$
(4.45 or 445 or 4.045 or 45.4)
- 8 $2.053 =$
($2\frac{53}{10}$ or $2\frac{53}{100}$ or $2\frac{53}{1000}$ or $\frac{253}{1000}$)
- 9 The digit of Tenths in 0.386 is parts. (3 or 0 or 8 or 6)
- 10 6 Hundredths = (6 or 0.60 or 0.060 or 0.006)
- 11 6 Tenths, 9 Thousandths = (0.609 or 0.069 or 6.009 or 0.906)

Assessment

on Lesson 1

First: Complete the following:

- 1 Nine milliard, ninety thousand and nine thousandths (in digits):
- 2 6,200.09 (in word form):
- 3 The place value of 9 in 596,258.27 is the
- 4 3 Tens + 3 Tenths =
- 5 The value of 1 in 653,852.218 is

Second: Choose the correct answer:

- 1 Four hundred million, thirty thousand and three hundredths =
 a 400,030,000.03 b 400,030.03 c 4,030,000.30 d 430.30
- 2 3,000,003.003 (in word form):
 a Three hundred, three million and three thousandths
 b Three million, three and three thousandths
 c Three million, three thousand and three thousandths
 d Three hundred thousand, three and three thousandths
- 3 In, the place value of 5 is the **Hundredths**.
 a 500.46 b 46.005 c 40.056 d 46,500
- 4 The digit that represents the **Thousandths** in 4,568.178 is
 a 1 b 7 c 8 d 4

Third: Match:

- 1 Nine hundred million **and** nine hundred thousandths
- 2 Nine hundred thousand **and** ninety hundredths
- 3 Nine hundred, nine **and** nine thousandths
- 4 Nine hundred million **and** nine thousandths
- 5 Nine hundred thousand **and** nine hundredths

- a 900,000.90
- b 909.009
- c 900,000,000.900
- d 900,000.09
- e 900,000,000.009

Lessons 2&3

1 Find the result of each of the following using the **place value chart**:

1 $4.52 \times 10 = \dots\dots\dots$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			

2 $456.258 \times 10 = \dots\dots\dots$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			

3 $56.28 \div 10 = \dots\dots\dots$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			

4 $253.9 \div 10 = \dots\dots\dots$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			

5 $9,832 \div 10 = \dots\dots\dots$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			

2 Complete the following:

- 1 The value of 9.25 increased when multiplying by 10 to
- 2 The value of increased when multiplying by 10 to 8.57.
- 3 The value of 36.6 when multiplying by 10 to 366.
- 4 The value of 0.25 decreased when dividing by 10 to
- 5 The value of decreased when dividing by 10 to 24.8.
- 6 The value of 1.25 when dividing by 10 to 0.125.
- 7 $893 \div 10 =$
- 8 $6.38 \div 10 =$
- 9 $\div 10 = 2.7$
- 10 $458.36 \times 10 =$
- 11 $\times 10 = 25$
- 12 $3,000 + 500 + 0.8 + 0.07 + 0.006 =$
- 13 $25 + 0.025 =$
- 14 $200 + 30 + 5 + 0.48 =$
- 15 $63 + 0.025 =$
- 16 $43.043 = 43 +$
- 17 $8,258.36 = 8,000 + 200 + 50 + 8 +$
- 18 $95.905 =$ (In expanded form)
- 19 $85.36 =$ Tens + Ones + Tenths + Hundredths
- 20 = 5 Tens + 5 Hundredths

3 Choose the correct answer:

- 1 The value of increased when multiplying by 10 to 25.26.
(25.26 or 252.6 or 2.526 or 2,526)
- 2 The value of decreased when dividing by 10 to 0.026.
(0.026 or 0.26 or 2.6 or 26)
- 3 $\times 10 = 258$
(2580 or 258 or 25.8 or 2.58)
- 4 $45 \times 10 =$
(450 or 0.45 or 4.5 or 40.5)
- 5 $8.05 \div 10 =$
(805 or 8.5 or 80.5 or 0.805)
- 6 When all digits of a number move one place to the left, its value
(decreases or increases or does not change or other)

7 When all digits of a number move one place to the _____, its value decreases. (right or left or other)

8 $23 + 0.02 + 0.003 =$ _____ (2,302.00 or 2,323 or 23.023 or 23.23)

9 $824.12 =$ _____
($824 + 1 + 2$ or $824 + 12$ or $824 + 0.12$ or $800 + 200 + 4 + 10 + 2$)

10 When 56.73 is multiplied by 10, the value of the digit 7 _____.
(does not change or increases from 0.7 to 7 or increases from 70 to 700 or decreases from 0.7 to 0.07)

4 Match:

1 58.25×10

2 $58.25 \div 10$

3 582.5×10

4 $582.5 \div 10$

a $58 + 0.25$

b $582 + 0.5$

c $5 + 0.825$

d $5,800 + 25$

5 Put **0.578** in the table, then **multiply** the result by **10** and complete:

Whole Number						Decimal Point	Decimals		
Thousands			Ones				Tenths	Hundredths	Thousandths
Hundreds	Tens	Ones	Hundreds	Tens	Ones				
						.			
						.			

1 The value of the digit _____ (increased/decreased) when multiplying by 10 from _____ to _____.

2 The value of the digit _____ (increased/decreased) when multiplying by 10 from _____ to _____.

3 The value of the digit _____ (increased/decreased) when multiplying by 10 from _____ to _____.

4 Therefore, the value of the number _____ (increased/decreased) by a factor of **10** from _____ to _____, **so** _____ $\times$ _____ = _____.

Assessment

on Lessons 2&3

First: Choose the correct answer:

- 1 The value of **45.26** increases when multiplying by 10 to
 a 4,526 b 4.526 c 452.6 d 450.26
- 2 The value of decreases when dividing by 10 to **75.28**.
 a 752.8 b 7.528 c 750.28 d 75.028
- 3 $400 + 50 + 0.2 + 0.004 =$
 a 450.24 b 450.024 c 450.204 d 45.204
- 4 $20.05 =$
 a $20 + 5$ b $200 +$ c $2 + 0.005$ d $20 + 0.05$
- 5 $85 \div 10 =$
 a 8.5 b 0.85 c 0.085 d 850

Second: Complete the following:

- 1 The value of increases when multiplying by 10 to 39.27.
- 2 The value of 270 is decreased when multiplying by 0.1 to
- 3 $45.012 = 45 +$
- 4 $500 + 20 + 3 + 0.8 + 0.07 + 0.006 =$
- 5 $\div 10 = 45.9$

Third: Match:

- 1 78×10
- 2 $78 \div 10 =$
- 3 $70 + 0.8 =$
- 4 $7 + 0.08 =$
- 5 $70 + 0.08 =$

- a 7.8
- b 70.8
- c 780
- d 70.08
- e 7.08

Lessons 4&5

1 Complete using ($<$, $=$, or $>$):

1 456.25 45.625

2 79.02 790.2

3 42.9 42.900

4 12.500 12.050

5 98.78 103.5

6 90.05 900.5

7 8.5×10 $85 \div 10$

8 9.08×10 $9.08 \div 10$

9 0.5×10 50

10 85.03 $80 + 5 + 0.03$

11 $75 + 0.05$ 75.50

12 107.05 One hundred and seventy-five hundredths

13 $800,008.3$ Eight hundred eight thousand and three tenths

14 $700,050,005.50$ Seven hundred million, fifty thousand, five and fifty hundredths

15 $400 + 4 + 0.4 + 0.004$ Four hundred four and four hundred thousandths

2 Circle the **greatest** number:

1 27.03 , 270.3 , 2.703

2 56.38 , 56.038 , 560.38

3 180.06 , 18.006 , 180.60

4 900.900 , 900.090 , 900.009

3 Circle the **smallest** number:

1 100.50 , 105.05 , 150.05

2 900.25 , 90.025 , 902.05

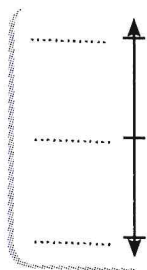
3 $1,000.02$, $100,200$, 100.002

4 8.237 , 80.237 , 802.037

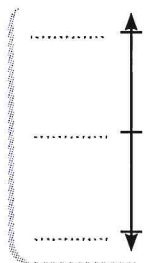
4 Round each of the following using the **midpoint strategy**:

1 To the nearest whole number:

a $5.32 \approx \dots\dots\dots$



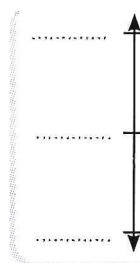
b $69.47 \approx \dots\dots\dots$



c $0.689 \approx \dots\dots\dots$

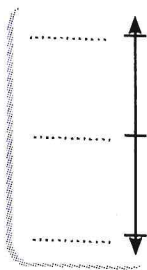


d $99.87 \approx \dots\dots\dots$

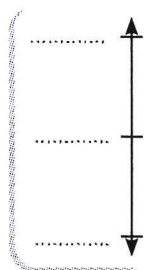


2 To the nearest Tenth:

a $4.58 \approx \dots\dots\dots$



b $109.98 \approx \dots\dots\dots$



c $0.026 \approx \dots\dots\dots$

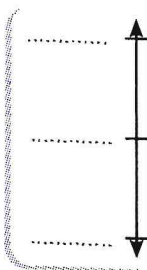


d $56.874 \approx \dots\dots\dots$

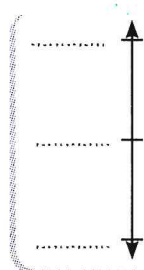


3 To the nearest Hundredth:

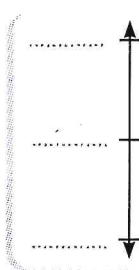
a $1.258 \approx \dots\dots\dots$



b $63.834 \approx \dots\dots\dots$



c $0.999 \approx \dots\dots\dots$

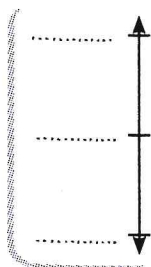


d $2.004 \approx \dots\dots\dots$

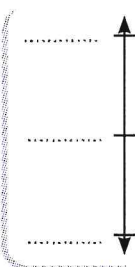


4 To the nearest Thousandth:

a $45.3687 \approx \dots\dots\dots$



b $0.3258 \approx \dots\dots\dots$



c $0.9999 \approx \dots\dots\dots$



5 Round each of the following numbers using the **rounding rule strategy**:

1 To the nearest whole number:

- | | | |
|-----------------|-----------------|------------------|
| a 5.28 ≈ | b 9.38 ≈ | c 0.368 ≈ |
| d 0.983 ≈ | e 12.5 ≈ | f 69.58 ≈ |
| g 100.7 ≈ | h 999.9 ≈ | i 53.248 ≈ |

2 To the nearest Tenth:

- | | | |
|------------------|-----------------|-----------------|
| a 23.54 ≈ | b 4.258 ≈ | c 0.97 ≈ |
| d 18.329 ≈ | e 1.25 ≈ | f 3.678 ≈ |
| g 200.03 ≈ | h 59.97 ≈ | i 0.024 ≈ |

3 To the nearest Hundredth:

- | | | |
|-----------------|------------------|------------------|
| a 7.258 ≈ | b 69.358 ≈ | c 0.293 ≈ |
| d 0.983 ≈ | e 0.125 ≈ | f 75.075 ≈ |
| g 4.007 ≈ | h 9.995 ≈ | i 20.002 ≈ |

4 To the nearest Thousandth:

- | | | |
|-------------------|----------------------|--------------------|
| a 25.3697 ≈ | b 2,258.3645 ≈ | c 100.0027 ≈ |
| d 3.0223 ≈ | e 0.0257 ≈ | f 9.9999 ≈ |

6 Complete the following:

- | | |
|--|-------------------------------------|
| 1 236.89 ≈ | (To the nearest One) |
| 2 0.258 ≈ | (To the nearest one decimal place) |
| 3 45.269 ≈ | (To the nearest 0.01) |
| 4 5.2423 ≈ | (To the nearest $\frac{1}{1000}$) |
| 5 56.289 ≈ 56.3 | (To the nearest) |
| 6 0.368 ≈ 0.37 | (To the nearest) |
| 7 0.909 ≈ 1 | (To the nearest) |
| 8 $56.28 \times 10 = \dots \approx \dots$ | (To the nearest whole number) |
| 9 $56.234 \div 10 = \dots \approx \dots$ | (To the nearest two decimal places) |
| 10 $5.7 < \dots < 5.8$ | |

7 Choose the correct answer:

1 $56.73 < \dots$ (56.69 or 56.8 or 56.075 or 56.729)

2 $98.25 > \dots$ (100.05 or 98.52 or 98.263 or 98.205)

3 $56.5 \times 10 \square 565 \div 10$ ($<$ or $=$ or $>$ or $\leq$)

4 $0.32 \times 10 \square 3.2 \div 10$ ($<$ or $=$ or $>$ or $\leq$)

5 $56 < \dots < 57$ (562 or 57.3 or 5.6 or 56.02)

6 $\dots \approx 2.5$ (To the nearest 0.1)
(2.445 or 2.456 or 0.536 or 2.05)

7 $\dots \approx 69$ (To the nearest whole number)
(69.5 or 68.4 or 68.369 or 69.45)

8 $56.298 \approx 56.30$ (To the nearest $\dots$)
(100 or 10 or 0.01 or whole number)

9 $63.245 \approx 60$ (To the nearest $\dots$)
(0.01 or 0.1 or 10 or whole number)

10 $56 + 0.02 + 0.007 \approx \dots$ (To the nearest two decimal places)
(56.2 or 56.3 or 56.02 or 56.03)

8 Arrange the following numbers:

1 56.25 , 56.52 , 56.025 , 56.502 , 56.052 (Ascendingly)

..... , , , ,

2 6.005 , 5.006 , 50.06 , 60.05 , 5.060 (Descendingly)

..... , , , ,

Assessment**on Lessons 4&5****First:** Choose the correct answer:

1 $45 + 0.5$ $450 + 0.05$

a $<$ b $>$ c $=$ d $\leq$

2 ≈ 75.3

a 75.03

b 75.39

c 750.3

d 75.34

(To the nearest Tenth)

3 $78.098 \approx$

a 78.1

b 78

c 79

d 7

(To the nearest whole number)

4 $68.567 \approx 68.57$

a whole number

b Tenth

c Hundredth

d Thousandth

(To the nearest)

5 ≈ 20.02

a 20.002

b 20.024

c 0.025

d 20.200

(To the nearest Hundredth)

Second: Round the following numbers:

1 $458.025 \approx$ (To the nearest Hundredth)

2 $458.025 \approx$ (To the nearest Tenth)

3 $458.025 \approx$ (To the nearest whole number)

4 $458.025 \approx$ (To the nearest Ten)

5 $458.025 \approx$ (To the nearest Hundred)

Third: Compare using ($<$, $=$, or $>$):

1 40.02 $400 + 2$

2 50.600 5.006

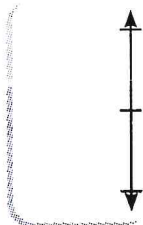
3 $500 + 90 + 3 + 0.8 + 0.07$ 593.87

4 300.03 Three hundred and three tenths

5 $25 + 0.03 + 0.008$ Twenty-five and eighty-three hundredths

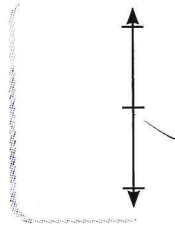
Fourth: Label the midpoint of the number line. Place the given decimal number at its proper location, and then round:

1 $65.25 \approx$



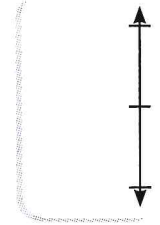
To the nearest whole number

2 $80.958 \approx$



To the nearest Tenth

3 $2.875 \approx$



To the nearest Hundredth



Assessment on Concept 1

First: Complete the following:

- 1 Five milliard, five million, five hundred thousand and five thousandths
= **(In digits)**
- 2 The smallest decimal number that can be formed from the digits (9, 8, 0, 5, and 7) up to the Hundredths is
- 3 In 8,567.491, the place value of 9 is the Hundredths, and its value is
- 4 The value of 586.47 is increased when multiplying by 10 to
- 5 $458.025 \approx$ **(To the nearest Tenth)**

Second: Choose the correct answer:

- 1 The numbers 800,000.08 **(in word form)**:
 (a) Eight hundred and eight hundredths (b) Eight thousand and eight tenths
 (c) Eight hundred and eight tenths (d) Eight hundred thousand and eight hundredths
- 2 The value of is decreased when dividing by 10 to 75.2.
 (a) 7,520 (b) 7.52 (c) 752 (d) 75.200
- 3 $4,000 + 40 + 0.4 + 0.04 =$
 (a) 4,040.44 (b) 44.44 (c) 444.04 (d) 4,400.40
- 4 ≈ 75.60 **(To the nearest Hundredth)**
 (a) 75.694 (b) 75.607 (c) 75.599 (d) 75.697

Third: Compare using (<, =, or >):

- 1 247.089 247.1
- 2 45.25 $45 + 25$
- 3 202.25 20.225
- 4 20.05 $20 + 0.05$
- 5 $1,000 + 50 + 0.2 + 0.008$ 1,500.280

Fourth: Match:

- 1 Three thousand and three thousandths =
- 2 150 Thousandths =
- 3 $400 + 20 + 0.1 + 0.008 =$
- 4 $45.95 \times 10 =$
- 5 $19.999 \approx$ **(To the nearest Hundredth)**

- (a) 0.15
- (b) 3,000.003
- (c) 20
- (d) 420.108
- (e) 459.5

Fifth: Answer the following:

Mazen is planning a trip from Cairo to El Fayoum. He will travel **147.72** kilometers. Round the distance to the nearest **whole number**.

Unit 1 Decimal Place Value and Computation

Concept 1.2 Adding and Subtracting Decimals

Lessons 6&7

1 Estimate the sum of each of the following to the nearest Tenth:

1 Using **rounding** strategy:

a $56.35 + 25.04$

..... + $\approx$

b $6.358 + 15.25$

..... + $\approx$

c $74.82 + 26.17$

..... + $\approx$

d $8.25 + 0.999$

..... + $\approx$

e $63.25 + 7.76$

..... + $=$

f $96.35 + 69.5$

..... + $\approx$

2 Using **benchmark decimals** strategy:

a $0.92 + 0.56$

..... + $\approx$

b $25.96 + 3.4$

..... + $\approx$

c $6.9 + 3.02$

..... + $\approx$

d $0.79 + 2.03$

..... + $\approx$

e $4.7 + 9.05$

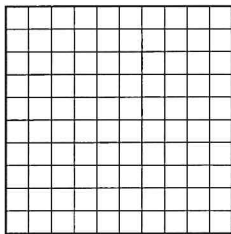
..... + $\approx$

f $6.01 + 4.53$

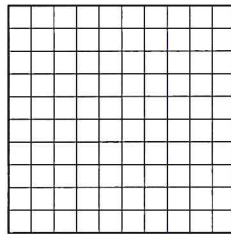
..... + $\approx$

2 Add using the **decimal model**:

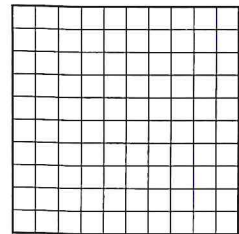
1 $0.12 + 0.56 =$



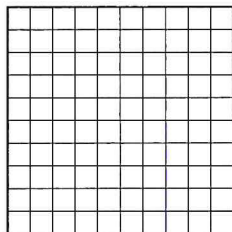
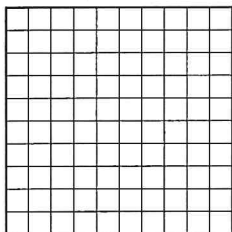
2 $0.4 + 0.24 =$



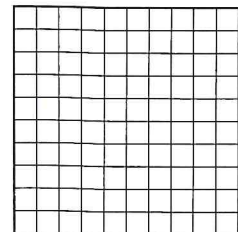
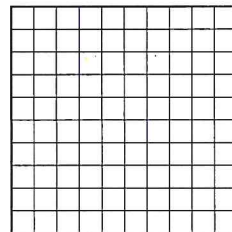
3 $0.15 + 0.45 =$



4 $0.75 + 0.68 =$



5 $0.85 + 0.78 =$



3 Add using the place value table:

1 $456.25 + 23.028 = \dots\dots\dots$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			
						.			

2 $69,586.35 + 892.9 = \dots\dots\dots$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			
						.			

3 $32.56 + 1,856.996 = \dots\dots\dots$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			
						.			

4 $32,650.28 + 63,984.105 = \dots\dots\dots$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			
						.			

5 $69,245.7 + 36.578 = \dots\dots\dots$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			
						.			

4 Find the result:

1 56.458

$+ 7.58$

2 483.258

$+ 736.27$

3 82.025

$+ 129.975$

4 0.369

$+ 12.57$

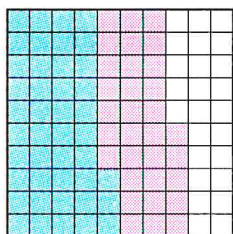
5 $56.367 + 56,246.34 = \dots\dots\dots$

6 $56.31 + 8,000.249 = \dots\dots\dots$

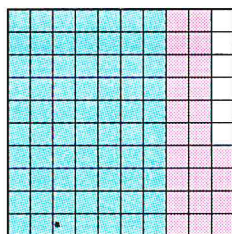
7 $39.56 + 245.36 = \dots\dots\dots$

8 $638.47 + 56,324.98 = \dots\dots\dots$

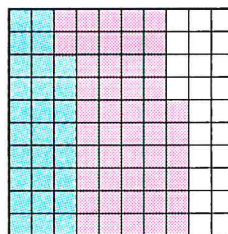
5 Write an **expression** to match the following models, and write an **addition problem**, then find the **result**:



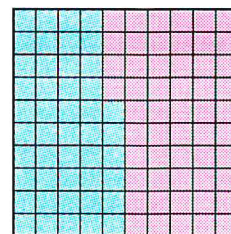
1 $\dots\dots\dots + \dots\dots\dots = \dots\dots\dots$



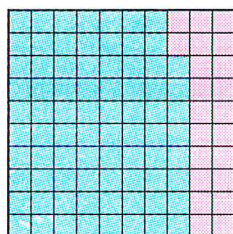
2 $\dots\dots\dots + \dots\dots\dots = \dots\dots\dots$



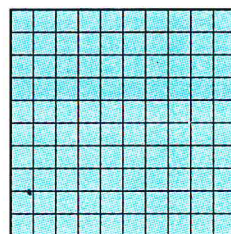
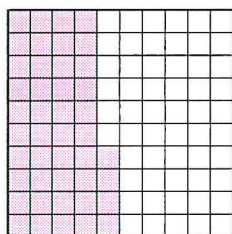
3 $\dots\dots\dots + \dots\dots\dots = \dots\dots\dots$



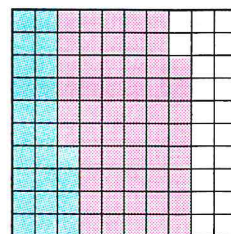
4 $\dots\dots\dots + \dots\dots\dots = \dots\dots\dots$



5 $\dots\dots\dots + \dots\dots\dots = \dots\dots\dots$



6 $\dots\dots\dots + \dots\dots\dots = \dots\dots\dots$



6 Complete the following:

1 7 Thousandths + 8 Thousandths = $\dots\dots\dots$ Thousandths

2 45 Thousandths + 15 Thousandths = $\dots\dots\dots$ Thousandths

3 $456 \text{ Thousandths} + 265 \text{ Thousandths} = \dots\dots\dots \text{Thousandths}$

4 $5 \text{ Hundredths} + 68 \text{ Thousandths} = \dots\dots\dots \text{Thousandths}$

5 $15 \text{ Hundredths} + 28 \text{ Hundredths} = \dots\dots\dots \text{Thousandths}$

7 Complete the following:

1 The benchmark decimal closest to 0.99 is

2 The benchmark decimal closest to 0.001 is

3 The benchmark decimal closest to 1.57 is

4 The estimate of the sum of $56.36 + 57.63$ using rounding to the nearest **0.1** strategy is

5 The estimate of the sum of $7.59 + 3.89$ using rounding to the nearest **whole number** is

6 $15 \text{ Hundredths} + 37 \text{ Hundredths} = \dots\dots\dots \text{Hundredths}$

7 $5 \text{ Tenths} + \dots\dots\dots \text{Hundredths} = 560 \text{ Thousandths}$

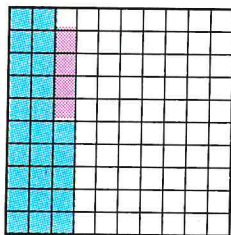
8 $45.36 + \dots\dots\dots = 57.79$

9 $0.45 + \dots\dots\dots = 1$

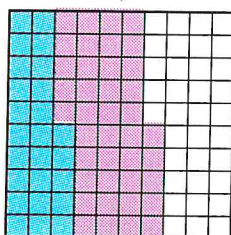
10 $0.2 + 0.5 + \dots\dots\dots = 2$

8 Choose the correct answer:

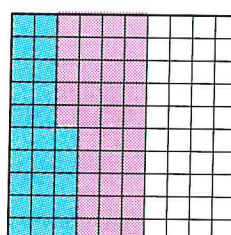
1 The model representing the addition problem $0.25 + 0.4$ is



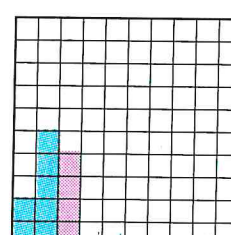
or



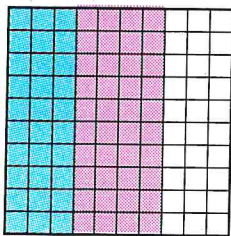
or



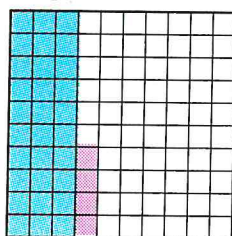
or



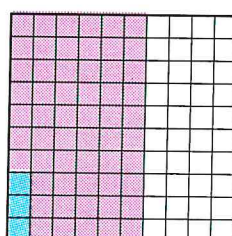
2 The model representing the addition problem $0.3 + 0.4$ is



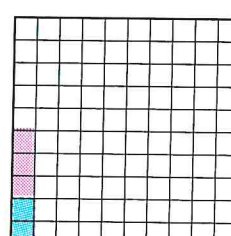
or



or



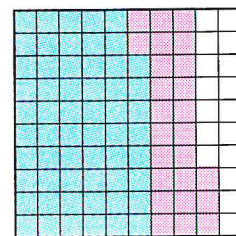
or



- 3 The addition problem that represents the opposite model is

(0.58 + 2.5 or 5.8 + 0.25

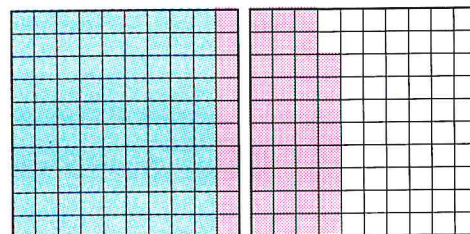
or 5.8 + 2.5 or 0.58 + 0.25)



- 4 The addition problem that represents the following model is

(0.09 + 0.48 or 0.9 + 0.48

or 90 + 48 or 0.9 + 4.8)



- 5 The benchmark decimal closest to 0.45 is

(0 or 0.5 or 1 or 1.5)

- 6 The benchmark decimal closest to 2.01 is

(1 or 1.5 or 2 or 2.5)

- 7 The estimate of the sum of 3.752 + 2.358 using rounding to the nearest 0.01 strategy is

(5 or 6.1 or 6.2 or 6.11)

- 8 4 Tenths + 3 Thousandths = Thousandths

(0.403 or 7 or 43 or 403)

- 9 0.7 + 1.2 + = 2

(1.9 or 1.1 or 0.1 or 0.3)

- 10 0.256 + = 1

(0.854 or 1.744 or 0.8 or 0.744)

9 Answer the following:

- 1 Malak wants to cycle 40 km in a week. By Thursday, Malak had covered 34.99 km, and on Friday she had covered 4.01 km. Did Malak achieve her goal or not? Show your steps.

- 2 A merchant bought 953.543 kilograms of fruits. The next day, he bought 240.615 kilograms. Estimate the total amount bought by the merchant in the two days. Use the strategy of rounding to the nearest 0.1.

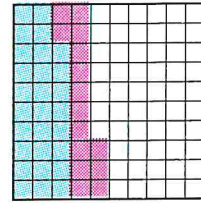
- 3 Fayrouz has 5 meters of fabric. If she needs 3.75 meters to make a dress, and 1.23 meters to make pants, estimate the length of the fabric that Fayrouz needs. Use the strategy of rounding to the nearest whole number. Is the fabric she has enough or not?

Assessment on Lessons 6&7

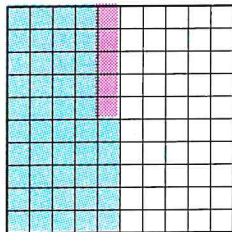
First: Choose the correct answer:

- 1 The expression that expresses the corresponding model is.....

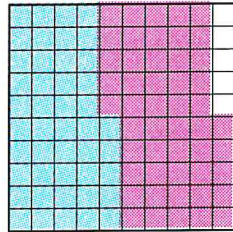
(a) $0.28 + 0.15$ (b) $2.8 + 1.5$
(c) $2.8 + 0.15$ (d) $0.28 + 1.5$



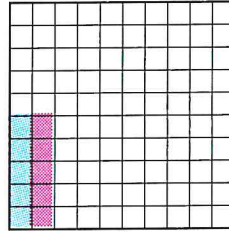
- 2 Which of the following models expresses the addition problem $0.45 + 0.5$?



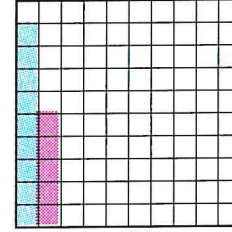
(a)



(b)



(c)



(d)

- 3 $5.25 + 32.7 =$

(a) 37.92 (b) 8.52 (c) 85.2 (d) 37.95

- 4 $0.75 +$ $= 1$

(a) 1.25 (b) 0.25 (c) 0.35 (d) 1.75

- 5 $65.5 + 5 =$

(a) 66 (b) 70.5 (c) 65.55 (d) 655.5

Second: Complete the following:

- 1 The estimated sum of $4.6 + 5.3$ using rounding to the nearest whole number strategy is
- 2 The estimated sum of $6.12 + 3.28$ using rounding to the nearest Tenth strategy is
- 3 4 Hundredths + 27 Thousandths = Thousandths
- 4 $452.8 + 2.782 =$ 5 + $0.62 = 1$

Third: Match:

1 $3.5 + 2.5$

2 $0.35 + 0.25 =$

3 $0.35 + 2.5 =$

4 $3.5 + 0.25 =$

5 $35 + 25 =$

(a) 0.6

(b) 2.85

(c) 6

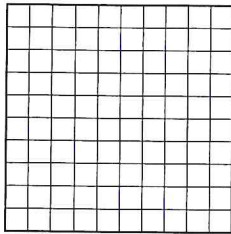
(d) 60

(e) 3.75

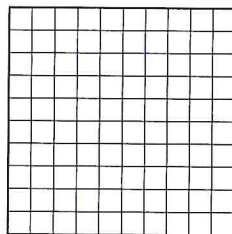
Lessons 8-11

1 Subtract using the decimal model:

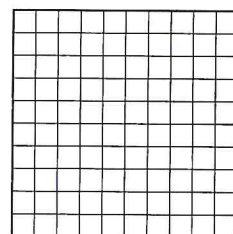
1 $0.45 - 0.27 =$



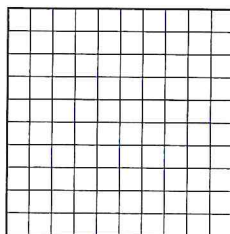
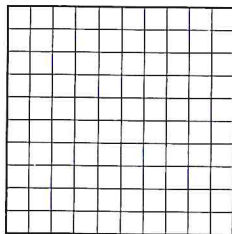
2 $0.8 - 0.39 =$



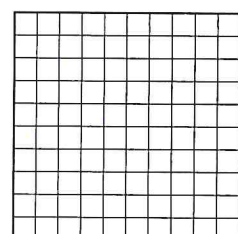
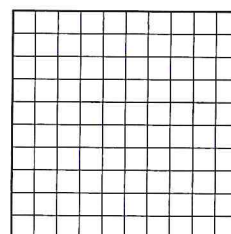
3 $0.78 - 0.5 =$



4 $1.5 - 0.82 =$



5 $1.35 - 0.9 =$



2 Subtract using the place value table:

1 $563.45 - 158.23 =$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			
						.			
						.			

2 $700.25 - 56.258 =$

Thousands			Ones			Decimal Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						.			
						.			
						.			

6 Complete the following:

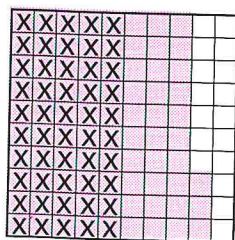
- 1 79 Thousandths – 15 Thousandths = Thousandths
- 2 82 Thousandths – 47 Thousandths = Thousandths
- 3 620 Thousandths – 174 Thousandths = Thousandths
- 4 14 Hundredths – 37 Thousandths = Thousandths
- 5 63 Hundredths – 18 Hundredths = Thousandths
- 6 5 Tenths – 24 Thousandths = Thousandths

7 Complete the following:

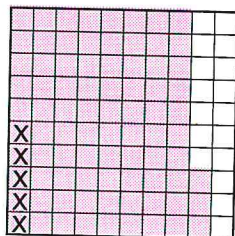
- 1 The estimate of $56.36 - 14.63$ using rounding to the nearest **whole number** strategy is
- 2 The estimate of $126.276 - 34.98$ using rounding to the nearest $\frac{1}{100}$ strategy is
- 3 The estimate of $10.893 - 9.75$ using rounding to the nearest **0.1** strategy is
- 4 The estimate of $9.99 - 7.58$ using the **benchmark decimal** strategy is
- 5 The estimate of $75.23 - 9.25$ using rounding to the nearest **Ten** is
- 6 75 Hundredths – 9 Hundredths = Hundredths
- 7 7 Tenths – Hundredths = 650 Thousandths
- 8 $963.16 - \dots = 56.35$
- 9 $1 - \dots = 0.45$
- 10 – 12.5 = 35.73

8 Choose the correct answer:

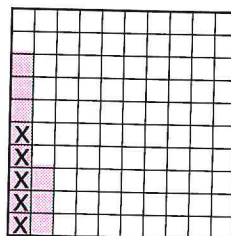
- 1 The model representing the subtraction problem $0.83 - 0.5$ is



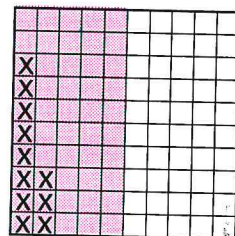
or



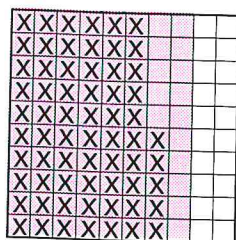
or



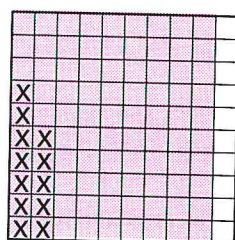
or



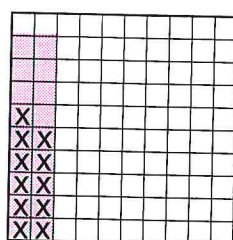
- 2 The model representing the subtraction problem $0.8 - 0.65$ is



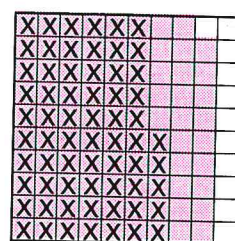
or



or



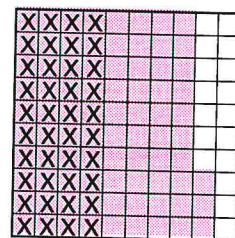
or



- 3 The subtraction problem that represents the opposite model is

$$(0.83 - 0.4 \text{ or } 8.3 - 0.4$$

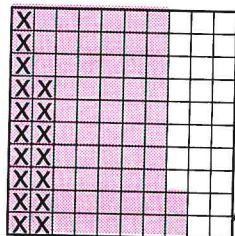
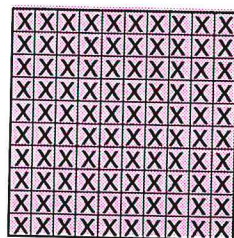
$$\text{or } 83 - 40 \text{ or } 0.83 - 0.04)$$



- 4 The subtraction problem that represents the opposite model is

$$(1.72 - 0.17 \text{ or } 1.72 - 1.7 \text{ or } 1.72 - 1.17$$

$$\text{or } 172 - 117)$$



- 5 The estimate of $78.089 - 5.247$ using rounding to the nearest **0.01** strategy is

$$(72.84 \text{ or } 72.842 \text{ or } 72.9 \text{ or } 65)$$

- 6 The estimate of $25.368 - 5.247$ using rounding to the nearest **0.1** strategy is

$$(20 \text{ or } 20.2 \text{ or } 20.12 \text{ or } 25.121)$$

- 7 The estimate of $86.25 - 14.89$ using rounding to the nearest **whole number** strategy is

$$(71.36 \text{ or } 71.4 \text{ or } 71 \text{ or } 70)$$

8 3 Tenths – 15 Thousandths = Thousandths

(2.85 or 285 or 0.15 or 0.285)

9 12.78 – = 8.8

(3.98 or 21.58 or 11.9 or 13.66)

10 1 – = 0.214

(786 or 0.786 or 1.214 or 0.213)

9 Answer the following:

1 Mohamed had **15,000** pounds. He bought a refrigerator for **7,520.25** pounds, and a washing machine for **5,640.5** pounds. How many pounds are left with Mohamed?

.....

.....

.....

2 A road is **675.5** km long. A train has traveled a distance of **239.47** km. What is the remaining distance the train still needs to travel?

.....

.....

.....

3 Tamer drinks **1.5** liters of water per day. If he drinks **0.5** liter in the morning and **0.7** liter at lunch, how many liters of water does he drink in the evening?

.....

.....

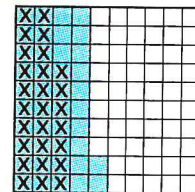
.....

Assessment on Lessons 8-11

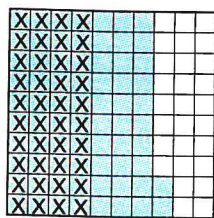
First: Choose the correct answer:

- 1 The expression that expresses the corresponding model is

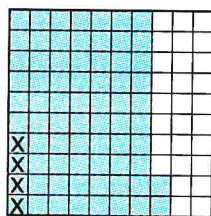
a $0.42 - 0.27$ b $4.2 - 2.7$
c $4.2 - 0.27$ d $0.42 - 2.7$



- 2 Which of the following models expresses the subtraction problem $0.72 - 0.4$?



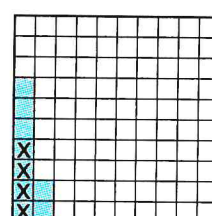
a



b



c



d

- 3 $7.15 - 2.6 =$

a 4.55 b 9.75 c 6.09 d 7.41

- 4 $1 -$ $= 0.47$

a 1.47 b 1.53 c 0.53 d 0.47

- 5 $8 - 0.45 =$

a 8.45 b 8.55 c 7.45 d 7.55

Second: Complete the following:

- 1 The estimated difference of $4.2 - 1.8$ using rounding to the nearest **whole number** strategy is
- 2 The estimated difference of $18.46 - 7.25$ using rounding to the nearest **Tenth** strategy is
- 3 5 Hundredths + 35 Thousandths = Thousandths
- 4 $32.7 - 2.079 =$ 5 $- 0.47 = 0.53$

Third: Match:

- 1 $15.2 - 5.2$ 2 $1.52 - 0.52$ 3 $15.2 - 0.52$ 4 $152 - 5.2$ 5 $152 - 52$

a 1 b 10 c 100 d 14.68 e 146.8

Fourth:

Emad caught **three** fish whose lengths were **29.28** cm, **29.255** cm, and **35.17** cm. What is their total length? What is the difference between the longest fish and the shortest fish?



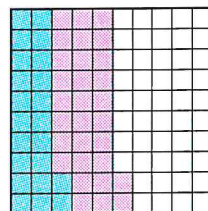
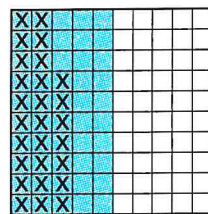
Assessment on Concept 2

First: Complete the following:

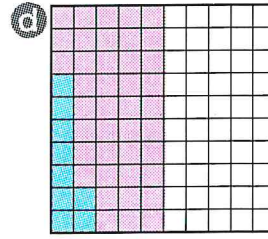
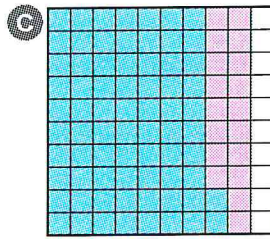
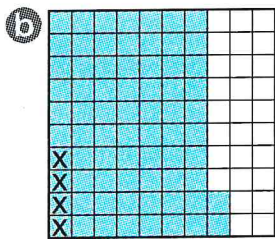
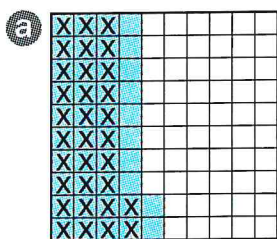
- 1 The estimated difference of $6.527 - 0.293$ using rounding to the nearest **Tenth** strategy is
- 2 7 Hundredths + 24 Thousandths = Thousandths
- 3 $45.25 + \dots = 90.5$
- 4 $59.126 - 42.35 = \dots$
- 5 5 Tenths - 5 Thousandths = Thousandths

Second: Choose the correct answer:

- 1 The expression that expresses the corresponding model is
 - a $0.5 - 0.27$
 - b $0.5 - 2.7$
 - c $0.5 + 0.27$
 - d $0.5 + 27$
- 2 The expression that expresses the corresponding model is
 - a $22 + 30$
 - b $0.22 - 0.03$
 - c $2.2 + 3.0$
 - d $0.22 + 0.30$
- 3 - $2.45 = 0.55$
 - a 3
 - b 30
 - c 300
 - d 0.10
- 4 $5.456 - 3.456 = \dots$
 - a 8.912
 - b 200
 - c 20
 - d 2
- 5 3 Tenths - 33 Thousandths = Thousandths
 - a 0.267
 - b 267
 - c 2.67
 - d 26.7



Third: Match each model to its expression:



- 1 $0.72 - 0.04$
- 2 $0.42 - 0.32$
- 3 $0.09 + 0.41$
- 4 $0.72 + 0.18$

Fourth: Answer the following:

Emad had **56.5** pounds. He bought a pen for **12.25** pounds and a notebook for **15.5** pounds. How much money is left with Emad?

Unit 2 Number Relationships

Concept 2.1

Expressions, Equations, and the Real World

Lesson 1

1 Choose the correct answer:

1 $45 + y - 2.5$ is a/an

(variable ☐ or mathematical expression ☐ or equation ☐ or other)

2 $25 + 5.7 \times 2$ is a/an

(variable ☐ or mathematical expression ☐ or equation ☐ or other)

3 "Ahmed sleeps 7 hours a day" is a/an

(variable ☐ or mathematical expression ☐ or equation ☐ or other)

4 $12 + 3.7 = y$ is a/an

(variable ☐ or mathematical expression ☐ or equation ☐ or other)

5 $8 + x - 7 = 6.7$ is a/an

(variable ☐ or mathematical expression ☐ or equation ☐ or other)

6 "The largest 3-digit number is 999" is a/an

(variable ☐ or mathematical expression ☐ or equation ☐ or other)

7 "Walaa has 1.25 kg of pistachios" is a/an

(variable ☐ or mathematical expression ☐ or equation ☐ or other)

8 The equation that represents "12.5 plus a number equals 15" is

($15 - x = 12.5$ ☐ or $15 + x = 12.5$ ☐ or $12.5 + x = 15$ ☐ or $12.5 + 15 = x$)

9 The equation that represents "a minus 12 equals 7.5" is

($a - 12 = 7.5$ ☐ or $12 - a = 7.5$ ☐ or $7.5 - a = 12$ ☐ or $12 - 7.5 = a$)

- 10 In the equation $45 - m = 25$, if 45 represents the number of students in one of the classes and 25 represents the number of girls in this class, then the variable m represents the

(number of girls or number of boys or number of students
or number of teachers)

- 11 In the equation $75 - 56.3 = y$, if 75 represents the money that Yassin owns, and 56.3 represents the money he spent, then the variable y represents

(the money he has now or the money he spent or the money he got
or the money that was with him first)

- 12 Adel is comparing the height of two plants in the garden using this equation: $92.5 - n = 45.5$, where 92.5 is the height of one of them, then the variable n in this equation represents

(the difference between the height of the two plants
or the sum of the height of the two plants
or the height of the other plant or Adel's height)

- 13 The equation $36.5 + 2.15 = y$ is similar to the equation

($36.5 = y + 2.15$ or $y + 36.5 = 2.15$ or $36.5 - y = 2.15$ or $y - 36.5 = 2.15$)

- 14 If the dimensions of a rectangle are 5.5 cm and 7.2 cm, then the variable " p " in the equation $7.2 + 5.5 + 7.2 + 5.5 = p$ represents the

(length or width or perimeter or area)

- 15 Huda bought a pen for 12.5 pounds and a ruler for 3.25 pounds. The equation that represents what Huda paid is

($3.25 + b = 12.5$ or $12.5 + b = 3.25$ or $12.5 - b = 3.25$ or $12.5 + 3.25 = b$)

2 Read the following story problems. Make an **equation** for each problem:

- 1** Hazem has **125** pounds. He bought books for **65.5** pounds.

What is the remaining money with Hazem?

.....

.....

- 2** A classroom in a school has **21** girls and **15** boys.

How many students are there in this class?

.....

.....

- 3** A cattle farm has **90** cows and **75** buffaloes. What is the difference between the number of cows and buffaloes?

.....

.....

- 4** Mazen is **145** cm tall and his brother Fouad is **20** cm taller than him.

How tall is Fouad?

.....

.....

- 5** There are two numbers whose sum is **255** and one of them is **107.5**. What is the other number?

.....

.....

3 Match:

- 1** The difference between **5.5** and **3.7**

- 2** The sum of **5.5** and **3.7**

- 3** **3.7** plus a number equals **5.5**

- 4** **5.5** minus a number equals **3.7**

- 5** A number minus **3.5** equals **3.7**

a $3.7 + 5.5 = y$

b $3.7 + a = 5.5$

c $m - 3.5 = 3.7$

d $5.5 - 3.7 = x$

e $5.5 - n = 3.7$

Assessment**on Lesson 1****First:** Choose the correct answer:

- 1 $5 + x + 3$ is
 (a) a variable (b) a mathematical expression
 (c) an equation (d) other
- 2 $7 + 5 = m + 3$ is
 (a) a variable (b) a mathematical expression
 (c) an equation (d) other
- 3 In the equation $45 + x = 86$, if **86** represents the number of students in one of the classes and **45** represents the number of boys in this class, then **x** represents
 (a) the number of girls (b) the number of boys
 (c) the number of students (d) the number of teachers
- 4 Hussam compared the heights of two of his colleagues and wrote this equation: $1.52 - 1.25 = y$; the letter **y** represents
 (a) the height of one of his colleagues
 (b) the sum of the heights of his colleagues
 (c) the difference between the heights of his colleagues
 (d) the height of Hussam
- 5 The equation that represents the difference between **4.25** and **3.79** is
 (a) $m = 3.79 + 4.25$ (b) $m - 3.79 = 4.25$ (c) $m - 4.25 = 3.79$ (d) $m = 4.25 - 3.79$

Second: Match:

- 1 The **difference** between 18.5 and 12.5
 2 The **sum** of 18.5 and 12.5
 3 12.5 **plus** a number equals 18.5
 4 18.5 **minus** a number equals 12.5
 5 A number **plus** 12.5 equals 18.5

- (a) $a = 18.5 + 12.5$
 (b) $a = 18.5 - 12.5$
 (c) $18.5 - a = 12.5$
 (d) $a + 12.5 = 18.5$
 (e) $12.5 + a = 18.5$

Lessons 2&3

1 Use mental math to **estimate** the equations, and then **solve** them:

1 $2.45 + n = 5.24$

$n =$

$n =$

2 $y - 12.40 = 3.01$

$y =$

$y =$

3 $8.5 - m = 4.25$

$m =$

$m =$

4 $8.12 + x = 20$

$x =$

$x =$

5 $2.30 + 3.10 = 1.50 + v$

$v =$

$v =$

6 $2.377 + 3.1 = 1.52 + a$

$a =$

$a =$

7 $63 - 15 = p + 10$

$p =$

$p =$

8 $7.5 - 1.5 = d + 5$

$d =$

$d =$

2 Complete the following:

1 If $2.5 + 3.5 + y = 16$, then $y =$

2 If $x + 15.2 = 14.5 + 15.5$, then $x =$

3 If $95 - 65.27 = z - 29.73$, then $z =$

4 If $10.5 - 2.5 = a - 8$, then $a =$

5 If $m = 1.28$, then $m + 37.72 =$

6 If $b = 3.25$, then $b + 56.75 =$

7 If $e = 17.102$, then $e - 11.102 =$

8 If $r = 32.5$, then $48 - r =$

3 Choose the correct answer:

1 If $63.5 + m = 108.5$, then $m =$ (45 or 172 or 45.5 or 171.5)

2 If $75.5 - x = 15.5$, then $x =$ (91 or 60 or 90.1 or 60.5)

3 If $a - 12.3 = 14.7$, then $a =$ (2.4 or 270 or 27 or 24)

4 If $3.45 + y = 7.13 + 2.15$, then $y =$ (9.28 or 3.68 or 12.73 or 5.83)

5 If $w - 12.5 = 8.5 - 3.5$, then $w =$ (17.5 or 4 or 7.5 or 9)

4 Write a story problem representing each equation, and then solve it:

1 $9.25 + 2.75 = m$

.....

.....

.....

.....

.....

2 $x - 125 = 45.8$

.....

.....

.....

.....

.....

Assessment**on Lessons 2&3****First: Choose the correct answer:**

1 If $78.45 + y = 90$, then $y =$

☐ a 78.45

☐ b 90

☐ c 168.45

☐ d 11.55

2 If $12 - m = 5.125$, then $m =$

☐ a 12

☐ b 5.125

☐ c 6.875

☐ d 17.125

3 If $2.5 + 3.4 + x = 7$, then $x =$

☐ a $2.5 + 3.4 + 7$

☐ b $7 - 2.5 + 3.4$

☐ c $7 - (2.5 + 3.4)$

☐ d $(7 + 2.5) - 3.4$

4 If $5.4 + 2.6 = c - 1.9$, then $c =$

☐ a 6.1

☐ b 8

☐ c 9.9

☐ d 7.3

Second: Complete the following:

1 If $8.5 + y = 15$, then $y =$

2 If $2.125 - z = 6.782 - 6.75$, then $z =$

3 If $m = 3.25$, then $m + 3.275 =$

Third:**Find the value of the variable (a) in each of the following:**

1 $35.2 + a = 63.8$

$a =$

$a =$

2 $a - 24.8 = 35.2$

$a =$

$a =$

3 $a + 6.15 = 10$

$a =$

$a =$

4 $45.16 - a = 13.48$

$a =$

$a =$



Assessment on Concept 1

First: Choose the correct answer:

- 1 $2.15 + x = 9.25$ is
☐ a a variable ☐ b a mathematical expression ☐ c an equation ☐ d other
- 2 If $28.45 - y = 15.05$, then $y =$
☐ a 13.40 ☐ b 43.50 ☐ c 28.45 ☐ d 15.05
- 3 In the equation $38.50 + x = 80.25$, if 80.25 represents the amount that Hossam owns, and 38.50 represents the amount remaining with him, then x represents
☐ a the amount he owns ☐ b the amount he has left
☐ c the amount he spent ☐ d other
- 4 The equation that represents the **sum** of 6.35 and 3.14 is
☐ a $m = 6.35 + 3.14$ ☐ b $m - 3.14 = 6.35$
☐ c $m - 6.35 = 3.14$ ☐ d $m = 6.35 - 3.14$

Second: Complete the following:

- 1 If $8.5 - y = 1.5 + 6.5$, then $y =$
- 2 If $5.52 + 2.01 + x = 9.21$, then $x =$
- 3 If $m = 3.01$, then $m - 0.5 =$
- 4 If $f + 0.28 = 9.07$, then $f =$

Third: Put (✓) or (✗):

- 1 " $x + 3.2 = 1.2 + 7.8$ " is called a variable. ()
- 2 The equation $7.2 + 1.05 = x$ is similar to the equation $1.05 + 7.2 = y$. ()
- 3 If $5.63 - m = 2.15$, then $m = 5.63 + 2.15$. ()
- 4 The equation that represents the difference between 18.5 and 12.5 is
 $z - 18.5 = 12.5$. ()

Unit² Number Relationships

Concept 2.2 Factors and Multiples

Lesson 4

1 Factorize each number into its **prime factors** using the **factor tree**:

1 6

6 =

2 10

10 =

3 12

12 =

4 16

16 =

5 18

18 =

6 24

24 =

7 32

32 =

8 36

36 =

2 Complete the following sentences:

- 1 The number of factors of a prime number is factors.
- 2 All prime numbers are odd numbers, except, which is an even number.
- 3 is the smallest prime number.
- 4 is the smallest odd prime number.
- 5 is a number greater than one and has only two factors.
- 6 The smallest 2-digit prime number is
- 7 The prime numbers less than 10 are
- 8 The number of prime factors of 25 is factors.
- 9 1, 2, 4, 8, and 16 only are the factors of

- 10 The prime factors of 21 are
- 11 2 is a factor of all numbers whose Ones digit is, or
- 12 The number whose prime factors are 2, 3, and 3 is

3 Choose the correct answer:

- 1 is a factor of all numbers. (0 or 1 or 2 or 3)
- 2 is a prime number. (51 or 52 or 57 or 59)
- 3 3 and 5 together are prime factors of (30 or 25 or 18 or 53)
- 4 The prime number (has no factors or has one factor only or has two factors only or has three factors only)
- 5 2, 3, 5, 7 are numbers. (even or odd or prime or composite)
- 6 The prime factors of 12 are (2 x 6 or 3 x 4 or 2 x 2 x 3 or 1 x 12)
- 7 If the prime factors of a number are $2 \times 2 \times 2$, then the number is (8 or 4 or 6 or 222)

4 Put (✓) or (✗):

- 1 17 is a prime number. ()
- 2 22 is a composite number. ()
- 3 The prime number, whose sum of its factors is 8, is 7. ()
- 4 The smallest prime number is 1. ()
- 5 All prime numbers are odd numbers. ()
- 6 4 is a prime number because it has more than two factors. ()
- 7 The smallest even prime number is 2. ()
- 8 The smallest odd prime number is 3. ()
- 9 2, 2, and 5 are the prime factors of 10. ()

Assessment

on Lesson 4

First: Choose the correct answer:

- 1 The number of factors of **16** is
 (a) 3 (b) 4 (c) 5 (d) 6
- 2 If all factors of a number are **1, 2, 3, 4, 6,** and **12**, then its prime factors are
 (a) $2 \times 2 \times 3$ (b) 3×4 (c) 2×6 (d) 1×12
- 3 The **smallest** prime number formed from **two** digits is
 (a) 2 (b) 10 (c) 11 (d) 12
- 4 **2** and **7** together are prime factors of
 (a) 72 (b) 14 (c) 27 (d) 9

Second: Match:

- 1 The prime factors of **20** are
- 2 The prime numbers less than **10** are
- 3 The prime factors of **18** are

- (a) 2, 3, 5, and 7
- (b) 2, 3, and 3
- (c) 2, 2, and 5

Third: Complete the following:

- 1 All prime numbers are odd numbers, except is an even number.
- 2 If $a \times 9 = 36$, then $a =$
- 3 The prime factors of 25 are **25** =
- 4 A number whose prime factors are **2, 2,** and **5** is

Fourth: Factorize each number into its **prime factors** using the **factor tree**:

1 45

45 =

2 32

32 =

3 60

60 =

Lesson 5

1 Find the greatest common factor (GCF) of each of the following:

1 12 and 8

12 = _____

8 = _____

GCF = _____ = _____

2 16 and 20

16 = _____

20 = _____

GCF = _____ = _____

3 9 and 18

9 = _____

18 = _____

GCF = _____ = _____

4 18 and 35

18 = _____

35 = _____

GCF = _____ = _____

5 32 and 24

32 = _____

24 = _____

GCF = _____ = _____

Unit 2 | Number Relationships

6 36 and 48

$$36 = \underline{\hspace{2cm}}$$

$$48 = \underline{\hspace{2cm}}$$

$$\text{GCF} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

7 60 and 45

$$60 = \underline{\hspace{2cm}}$$

$$45 = \underline{\hspace{2cm}}$$

$$\text{GCF} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

8 42 and 28

$$42 = \underline{\hspace{2cm}}$$

$$28 = \underline{\hspace{2cm}}$$

$$\text{GCF} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

9 4×8 and $6 \times 2 \times 2$

$$\underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}}$$

$$\text{GCF} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

10 6×9 and 8×9

$$\underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}}$$

$$\text{GCF} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

2 Complete the following sentences:

- 1 If $y = 2 \times 2 \times 2 \times 2$, then $y =$
- 2 If $d = 3 \times 3 \times 5$, then $d =$
- 3 The prime factors of 17 are
- 4 The prime factors of 26 are
- 5 The greatest common factor of 3 and 5 is
- 6 The greatest common factor of 7 and 14 is
- 7 The prime number whose factors' sum is 12 is
- 8 The prime number between 90 and 100 is

3 Choose the correct answer:

- 1 The prime factors of 14 are
(2 x 7 or 1 x 14 or 1 x 2 x 7 or 2 x 3 x 4)
- 2 The prime factors of 16 are
(2 x 8 or 2 x 2 x 4 or 4 x 4 or 2 x 2 x 2 x 2)
- 3 The **greatest common factor** of any two prime numbers is
(the largest number or the smallest number or one or zero)
- 4 The **greatest common factor** of two numbers, one of which is a factor of the other, is
(the larger number or the smaller number or the product of the two numbers or the sum of the two numbers)
- 5 The **greatest common factor** of 28 and 14 is (7 or 2 or 28 or 14)
- 6 The **greatest common factor** of 11 and 5 is (11 or 5 or 1 or 16)
- 7 If the **common prime** factors of two numbers are 2, 2, and 3, then the **GCF** of these two numbers is (223 or 7 or 12 or 24)

Assessment

on Lesson 5

First: Choose the correct answer:

- 1 The prime factor(s) of 14 are/is
☐ a 2 ☐ b 2 and 7 ☐ c 1, 2, 7, and 14 ☐ d 3
- 2 The **greatest common factor** of any two prime numbers is
☐ a the largest number ☐ b the smallest number
☐ c 1 ☐ d non-existent
- 3 The greatest common factor of 21 and 7 is
☐ a 7 ☐ b 21 ☐ c 28 ☐ d 14
- 4 If the **common prime** factors of two numbers are: 2, 3, and 5, then the **GCF** of these two numbers is
☐ a 6 ☐ b 30 ☐ c 10 ☐ d 2

Second: Complete the following sentences:

- 1 If $n = 2 \times 2 \times 7$ then, $n =$
- 2 The factors of 23 are
- 3 The prime factors of 19 are
- 4 The **greatest common factor** of 8 and 5 is
- 5 A prime number whose factors' sum is 6 is

Third: Find the **greatest common factor** of each of the following:

- 1 30 and 20

30 =

20 =

GCF = =

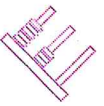
- 2 12 and 48

12 =

48 =

GCF = =

Fourth:Find the **greatest common factor** of (6×6) and (5×8) .



Lessons 6&7

1 Circle the **multiples** of the following numbers:

1 3 $\longrightarrow$ 2 , 6 , 12 , 14 , 21 , 25 , 30 , 37 , 42

2 6 $\longrightarrow$ 0 , 2 , 18 , 21 , 30 , 42 , 52 , 56 , 60

3 10 $\longrightarrow$ 5 , 15 , 10 , 25 , 35 , 40 , 50 , 95 , 100

4 5 $\longrightarrow$ 8 , 12 , 25 , 45 , 59 , 85 , 150 , 551 , 15

5 7 $\longrightarrow$ 2 , 14 , 27 , 35 , 47 , 49 , 63 , 77 , 81

2 Answer the following:

1 a List the first **10** multiples of **3**:

b List the first **5** multiples of **6**:

c The **common multiples** of **3** and **6** of those you listed are

d The **least common multiple** of the two numbers is

2 a List the first **7** multiples of **6**:

b List the first **7** multiples of **4**:

c The **common multiples** of **6** and **4** of those you listed are

d The **least common multiple** of the two numbers is

3 a List the first **5** multiples of **8**:

b List the first **10** multiples of **4**:

c The **common multiples** of **8** and **4** of those you listed are

d The **least common multiple** of the two numbers is

4 a List the first **5** multiples of **6**:

b List the first **8** multiples of **8**:

c The **common multiples** of **6** and **8** of those you listed are

d The **least common multiple** of the two numbers is

3 Choose the correct answer:

1 is a multiple of 9. (19 or 6 or 3 or 27)

2 14 is a multiple of (4 or 7 or 21 or 28)

3 The **common multiple** of all numbers is (1 or 2 or 3 or 0)

4 The LCM of 9 and 6 is (54 or 36 or 18 or 9)

5 The LCM of 8 and 10 is (10 or 80 or 8 or 40)

6 The is a number that has more than one set of factor pairs.
(prime number or factor or multiple or composite number)

7 The is the number that is **multiplied** by another number to get the product.
(prime number or factor or multiple or composite number)

8 Counting by jumping is a way to find the of a number.
(sum or factors or multiples or other)

9 The least common multiple of any **two** prime numbers is
(the larger number or the smaller number
or the product of the two numbers or the sum of the two numbers)

10 The least common multiple of **two** numbers, one of which is a factor of the other is
(the larger number or the smaller number
or the product of the two numbers or the sum of the two numbers)

4 Find the **GCF** and **LCM** of each of the following:

1 8 and 6

$$8 = \dots\dots\dots$$

$$6 = \dots\dots\dots$$

$$\text{GCF} = \dots\dots\dots = \dots\dots\dots$$

$$\text{LCM} = \dots\dots\dots = \dots\dots\dots$$

2 12 and 16

$$12 = \dots\dots\dots$$

$$16 = \dots\dots\dots$$

$$\text{GCF} = \dots\dots\dots = \dots\dots\dots$$

$$\text{LCM} = \dots\dots\dots = \dots\dots\dots$$

3 15 and 6

$$15 = \dots\dots\dots$$

$$6 = \dots\dots\dots$$

$$\text{GCF} = \dots\dots\dots = \dots\dots\dots$$

$$\text{LCM} = \dots\dots\dots = \dots\dots\dots$$

4 10 and 8

$$10 = \dots\dots\dots$$

$$8 = \dots\dots\dots$$

$$\text{GCF} = \dots\dots\dots = \dots\dots\dots$$

$$\text{LCM} = \dots\dots\dots = \dots\dots\dots$$

Unit 2 | Number Relationships

5 18 and 12

18 = _____

12 = _____

GCF = _____ = _____

LCM = _____ = _____

6 21 and 14

21 = _____

14 = _____

GCF = _____ = _____

LCM = _____ = _____

7 28 and 14

28 = _____

14 = _____

GCF = _____ = _____

LCM = _____ = _____

8 24 and 36

24 = _____

36 = _____

GCF = _____ = _____

LCM = _____ = _____

Assessment on Lessons 6&7

First: Choose the correct answer:

- 1 is a multiple of 8.
 (a) 2 (b) 4 (c) 16 (d) 6
- 2 24 is a multiple of
 (a) 16 (b) 14 (c) 8 (d) 9
- 3 The **common multiple** of all numbers is
 (a) 0 (b) 1 (c) 2 (d) 3
- 4 The LCM of 8 and 4 is
 (a) 4 (b) 8 (c) 16 (d) 12
- 5 The LCM of 3 and 5 is
 (a) 8 (b) 15 (c) 30 (d) 45

Second: Use the following words to complete:
 (prime – factor – One – composite number – multiples)

- 1 A is a number with more than one set of factor pairs.
- 2 A is a number that is multiplied by another number to get a product.
- 3 Skip counting is a way to find the of a number.
- 4 is a factor of all numbers.
- 5 The number has only 2 factors: one and the number itself.

Third: Find the **GCF** and **LCM** of each of the following:

1 8 and 16

8 =
 16 =

GCF = =

LCM = =

2 15 and 20

15 =
 20 =

GCF = =

LCM = =

Fourth: Find the **LCM** of the numbers 8 and 12.

- 1 The multiples of 8 are:,,,,
- 2 The multiples of 12 are:,,,
- 3 The **common multiples** are: 4 LCM =

Lesson 8

1 Find the **GCF** and **LCM** of each of the following:

1 12 and 8

GCF = _____ = _____

LCM = _____ = _____

2 6 and 9

GCF = _____ = _____

LCM = _____ = _____

3 16 and 20

GCF = _____ = _____

LCM = _____ = _____

4 14 and 21

GCF = _____ = _____

LCM = _____ = _____

5 6 and 15

.....

GCF = =

LCM = =

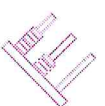


6 24 and 16

.....

GCF = =

LCM = =



7 45 and 30

.....

GCF = =

LCM = =



8 25 and 15

.....

GCF = =

LCM = =



 2 Answer the following:

- 
- 1 Mohamed trains to lift weights every 4 days and trains for tennis every 6 days. After how many days will Mohamed play tennis and lift weights on the same day?

- 
- 2 Omnia has two strips of fabrics. One is 45 centimeters wide, and the other is 75 cm wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips?

- 
- 3 Ola sells baskets of figs, each holding 9. She also sells bags of pomegranates, each holding 7. If she sells the same number of each, what is the smallest quantity of each type of fruit that she will sell?

- 
- 4 Two alarms, one of which rings regularly every two hours, and the other rings regularly every 3 hours. If the two alarms rang together at 12 o'clock, at what hour will they ring together for the first time after that?

- 5 A merchant has 18 kg of oranges and 27 kg of apples. He wants to divide both the oranges and the apples into bags of equal mass. What is the largest number of bags for each type of fruit to have bags with the same masses? How many kilograms of oranges will each bag contain? How many kilograms of apples will each bag contain?

.....

.....

.....

.....

- 6 A hospital has 12 doctors and 28 nurses. Find the largest number of equal groups that can be formed of both doctors and nurses. How many doctors are in each group? What is the number of nurses in each group?

.....

.....

.....

.....

- 7 Mahmoud wants to divide 24 pens and 36 notebooks into groups so that each group contains the same number of tools. What is the largest number of groups that can be formed for each type of tool so that each group has the same number?

.....

.....

.....

.....

- 8 Adel goes to the club every 3 days to train for football, and his friend Ahmed goes to the same club every 4 days to train for volleyball. After how many days will the two friends meet?

.....

.....

.....

.....

Assessment

on Lesson 8

First: Choose the correct answer:

- 1 The GCF of **12** and **18** is
 (a) 2 (b) 3 (c) 6 (d) 9
- 2 The LCM of **6** and **8** is
 (a) 2 (b) 24 (c) 48 (d) 14
- 3 Which of the following is a multiple of **12**?
 (a) 6 (b) 3 (c) 12 (d) 4
- 4 Which of the following is a common multiple of **9** and **6**?
 (a) 3 (b) 12 (c) 27 (d) 18

Second: Complete the following sentences:

- 1 The multiples of **6** between **20** and **30** are
- 2 The prime factors of **27** are
- 3 The **greatest common factor** of **18** and **24** is
- 4 The **LCM** of **12** and **8** is

Third: Answer the following:

- 1 Menna gives her friends pencils and erasers. The store sells pencils in boxes of **8** and erasers in boxes of **10**. If Menna wants the same number of each, what is the minimum number of pencils that she will have to buy?

- 2 Nour is making snack bags for an upcoming trip. He has **6** oranges and **12** pieces of dried fruit. He wants the snack bags to be identical without any food left over. What is the greatest number of snack bags that Nour can make?



Assessment on Concept 2

First: Choose the correct answer:

- 1 The number has only **two** factors.
☐ a prime ☐ b composite ☐ c even ☐ d odd
- 2 is a common multiple of **10** and **5**.
☐ a 20 ☐ b 15 ☐ c 5 ☐ d 24
- 3 All the following numbers are multiples of **8**, except
☐ a 16 ☐ b 24 ☐ c 32 ☐ d 36
- 4 The **greatest common factor** of **12** and **6** is
☐ a 2 ☐ b 3 ☐ c 6 ☐ d 12

Second: Complete the following sentences:

- 1 is a common factor of all numbers.
- 2 **40**, **25**, and **15** are multiples of the number
- 3 is a common multiple of all numbers.
- 4 The **LCM** of **15** and **30** is
- 5 If $40 = 5 \times 8$, then is a multiple of the two numbers and

Third: Put (✓) or (X):

- 1 **2** is an odd prime number. ()
- 2 The **GCF** of **2** and **3** is **3**. ()
- 3 The prime factors of **18** are 1, 2, 3, 6, 9, and 18. ()
- 4 **14** is the LCM of **2** and **14**. ()
- 5 0 and 7 are the multiples of **7**. ()

Fourth: Answer the following:

Sameh wants to divide **21** pens and **35** notebooks into groups so that each group contains the same number of tools. What is the largest number of groups that can be formed for each type of tool?

How many pens are in each group? How many notebooks are in each group?

.....
.....

Unit ³ Multiplication with Whole Numbers

Concept 3.1 Models for Multiplication

Lesson 1

1 Multiply using the area model:

1 $5 \times 24 =$

--	--

2 $9 \times 385 =$

--	--	--

3 $842 \times 6 =$

--	--	--

4 $4 \times 217 =$

--	--	--

5 $23 \times 18 =$

6 $43 \times 54 =$

7 $42 \times 102 =$

8 $89 \times 450 =$

9 $63 \times 257 =$

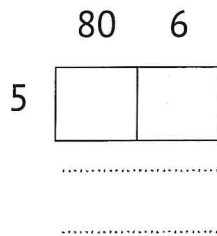
10 $28 \times 134 =$

11 $325 \times 12 =$

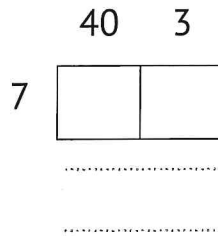
12 $275 \times 45 =$

2 Write the **multiplication problems** that express the following models, and then solve them:

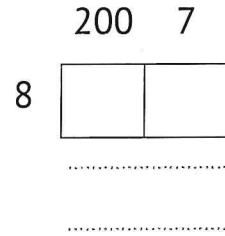
1



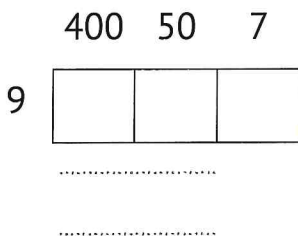
2



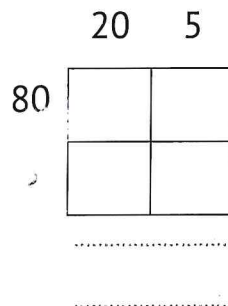
3



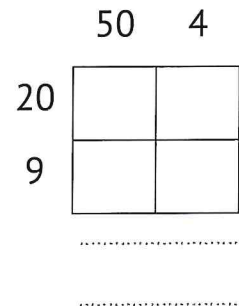
4



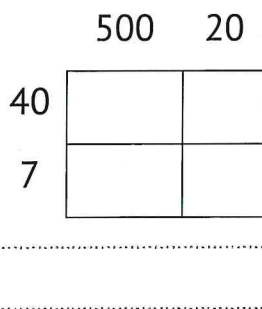
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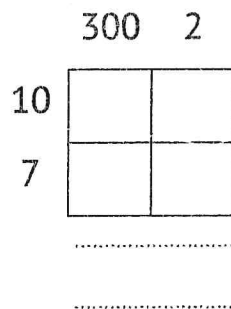
6



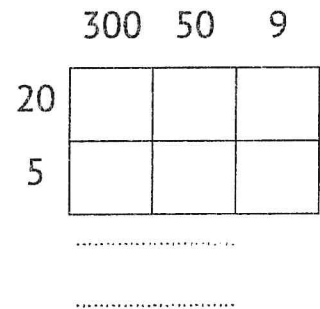
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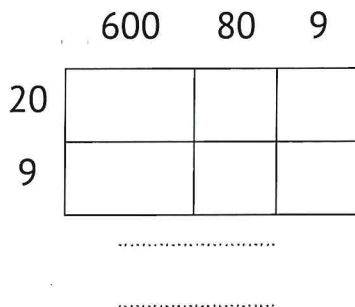
8



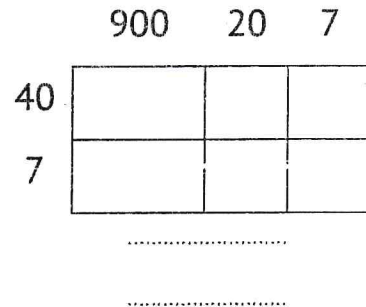
9



10



11



3 Choose the correct answer:

- 1 The multiplication problem that expresses the corresponding area model is

5	500	400	15
---	-----	-----	----

(5 x 915 or 5 x 183 or 143 or 5 x 12)

- 2 The multiplication problem that expresses the corresponding model is

	800	7
4		

(4 x 870 or 4 x 807 or 4 x 780 or 4 x 708)

- 3 The multiplication problem that expresses the corresponding area model is

	30	6
20		
7		

(36 x 27 or 63 x 72 or 207 x 306 or 26 x 37)

- 4 The multiplication problem that expresses the corresponding area model is

	300	70	5
10			
9			

(19 x 15 or 19 x 312 or 19 x 375 or 573 x 91)

- 5 The area model that represents 45 x 36 is

	30	6
40		
5		

or

	30	5
40		
6		

or

	3	6
4		
6		

or

	30	40
5		
6		

- 6 The area model that represents 24 x 308 is

	30	8
20		
4		

or

	300	8
2		
4		

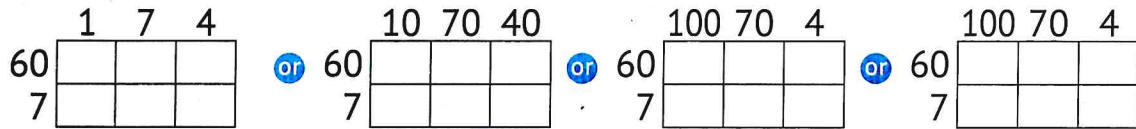
or

	300	8
20		
4		

or

	30	8
2		
4		

7 The area model that represents 67×174 is



8 The multiplication problem that expresses the corresponding area model is

600	90
40	6

(690×46 or 640×96 or 23×32 or 203×32)

4 Answer the following:

1 Hazem bought 7 books; the price of each book is 10 pounds.
Find what Hazem paid.

.....

.....

2 Mona saves 100 pounds every month.
How much does Mona save in 5 months?

.....

.....

3 Amr bought 4 suits; the price of one suit is 10,000 pounds.
Find what Amr paid.

.....

.....

4 If a box contains 200 balls, how many balls are in eight similar boxes?

.....

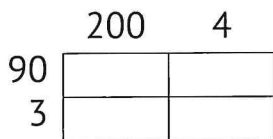
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Assessment

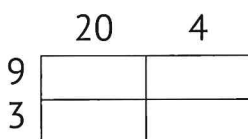
on Lesson 1

First: Choose the correct answer:

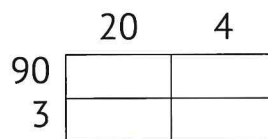
- 1 The area model that represents 93×204 is



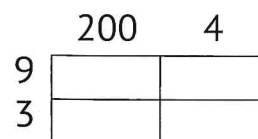
(a)



(b)



(c)



(d)

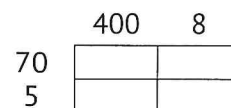
- 2 The multiplication problem that expresses the following model is

(a) 75×48

(b) 705×408

(c) 75×408

(d) 705×48



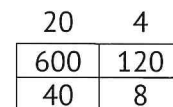
- 3 The multiplication problem that expresses the following model is

(a) 24×48

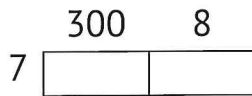
(b) 24×720

(c) 24×32

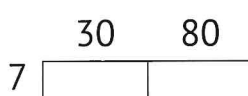
(d) 640×128



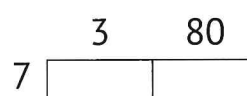
- 4 The model that expresses the multiplication problem 7×308 is



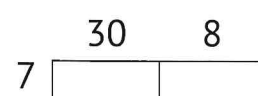
(a)



(b)



(c)



(d)

Second: Complete the following:

1 40

20	3
----	---

 $\times$ =

2 6

1,200	240	42
-------	-----	----

 $\times$ =

3

40	5
1,200	

 $\times$ =

4

5	5
200	350

 $\times$ =

Third: Answer the following:

Aya ran a 5-kilometer race on Saturday. If there are 1,000 meters in 1 kilometer, how many meters did she run?

Lesson 2

1 Find the product using the Distributive Property:

1 $8 \times 27 = (8 \times \dots) + (8 \times \dots) = \dots + \dots = \dots$

2 $6 \times 27 = \dots$

3 $7 \times 306 = (7 \times \dots) + (7 \times \dots) = \dots + \dots = \dots$

4 $9 \times 283 = \dots$

5 $15 \times 79 = (10 + 5) \times (70 + 9)$
 $= (10 \times \dots) + (10 \times \dots) + (5 \times \dots) + (5 \times \dots)$
 $= \dots + \dots + \dots + \dots = \dots$

6 $23 \times 68 = \dots$
 $= \dots$
 $= \dots$

7 $24 \times 624 = (\dots + \dots) \times (\dots + \dots + \dots)$
 $= \dots$
 $= \dots$

2 Solve using the area model:

1

	40	5
8		

$(\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots$
 $= \dots$

2

	200	8
7		

$(\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots$
 $= \dots$

3

	50	3
60		
4		

$(\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots + \dots + \dots$
 $= \dots$

4

	40	7
10		
3		

$(\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots)$
 $= \dots + \dots + \dots + \dots$
 $= \dots$

Unit 3 | Multiplication with Whole Numbers

5

	400	70	4
20			
4			

$$\begin{aligned}
 & (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) \\
 & + (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) \\
 & = \dots + \dots + \dots + \dots \\
 & + \dots + \dots = \dots
 \end{aligned}$$

6

	100	70	4
60			
7			

$$\begin{aligned}
 & (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) \\
 & + (\dots \times \dots) + (\dots \times \dots) + (\dots \times \dots) \\
 & = \dots + \dots + \dots + \dots \\
 & + \dots + \dots = \dots
 \end{aligned}$$

3 Solve using the area model:

1

--	--	--

$$(8 \times 20) + (8 \times 7)$$

$$= \dots$$

2

--	--	--

$$(9 \times 600) + (9 \times 7)$$

$$= \dots$$

3

$$(40 \times 70) + (40 \times 3) + (6 \times 70) + (6 \times 3)$$

$$= \dots$$

4

$$(20 \times 100) + (20 \times 7) + (3 \times 100) + (3 \times 7)$$

$$= \dots$$

5

$$(20 \times 500) + (20 \times 80) + (20 \times 4)$$

$$+ (4 \times 500) + (4 \times 80) + (4 \times 4)$$

$$= \dots$$

6

$$(60 \times 200) + (60 \times 80) + (60 \times 3)$$

$$+ (4 \times 200) + (4 \times 80) + (4 \times 3)$$

$$= \dots$$

4 Using the **rectangle model**, find the result of the following.

Decompose the numbers in three different ways:

1 $45 \times 27 = \dots\dots\dots$

a

--	--

b

--	--

c

--	--

2 $73 \times 15 = \dots\dots\dots$

a

--	--

b

--	--

c

--	--

3 $21 \times 479 = \dots\dots\dots$

a

--	--

b

--	--

c

--	--

4 $38 \times 208 = \dots\dots\dots$

a

--	--

b

--	--

c

--	--

5 Complete the following:

1 $178 \times 8 = 8 \times (\dots\dots\dots + \dots\dots\dots + \dots\dots\dots)$

2 $6 \times (200 + 30 + 7) = \dots\dots\dots \times \dots\dots\dots$

3 $45 \times 36 = (\dots\dots\dots + \dots\dots\dots) \times (\dots\dots\dots + \dots\dots\dots)$

4 72×15

$= (70 \times \dots\dots\dots) + (70 \times \dots\dots\dots) + (2 \times \dots\dots\dots) + (2 \times \dots\dots\dots)$

5 $(30 \times 500) + (30 \times 20) + (7 \times 500) + (7 \times 20) = \dots\dots\dots \times \dots\dots\dots$

6

30	600	
7		35

7

		3
	8,000	
4	800	

6 Choose the correct answer:

1 $5 \times (600 + 2) =$ (5 x 8 or 5 x 62 or 5 x 602 or 5 x 6,002)

2 $8 \times 420 = 8 \times$ (4 + 20 or + 20 or 400 + 2 or 400 + 20)

3 $12 \times 200 + 12 \times 30 + 12 \times 5 = 12 \times$ (12 or 205 or 230 or 235)

4 $56 \times 93 =$
 ((50 + 6) x (90 + 3) or (50 x 6) + (90 x 3) or (50 + 6) + (90 + 3) or (5 + 6) x (9 + 3))

5 $(80 \times 50) + (80 \times 7) + (3 \times 50) + (3 \times 7) =$
 (85 x 37 or 83 x 57 or 87 x 35 or 78 x 35)

6 The multiplication problem that expresses the corresponding area model is

2,500	300
300	36

(56 x 56 or 25 x 36 or 65 x 65 or 300 x 36)

7 The multiplication problem that expresses the corresponding area model is

40	200	7
8		

(48 x 270 or 48 x 27 or 48 x 207 or 48 x 9)

8 The area model that represents $(8 \times 200) + (8 \times 6)$ is

8	200	6	or	8	20	6	or	8	200	60	or	8	20	60

9 The area model that represents $(20 + 8) \times (90 + 4)$ is

20	90	8	or	2	9	4	or	20	90	4	or	200	900	4
4				8				8				8		

10 The area model that represents $(50 \times 70) + (50 \times 3) + (4 \times 70) + (4 \times 3)$ is

50	4	3	or	50	70	3	or	50	70	4	or	5	7	3
70				4				3				4		

Assessment

on Lesson 2

First: Choose the correct answer:

1 $7 \times (500 + 4) =$

a 7×54

b 7×504

c $7 \times 5,004$

d 7×9

2 $(60 \times 20) + (60 \times 3) + (7 \times 20) + (7 \times 3) =$

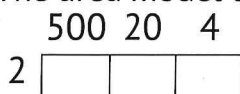
a 67×23

b 62×73

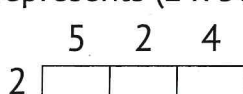
c 63×27

d 76×32

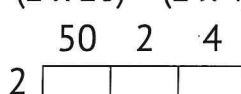
3 The area model that represents $(2 \times 500) + (2 \times 20) + (2 \times 4)$ is



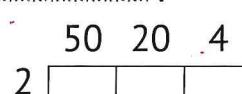
a



b



c



d

4 The problem that represents the opposite area model is

a $4 \times (6 + 9)$

b $4 \times (60 + 9)$

c $4 \times (600 + 9)$

d $4 \times (60 + 90)$



5 $15 \times 56 = 15 \times (\text{.....} + \text{.....})$

a $50 + 6$

b $5 + 6$

c $50 + 60$

d $5 + 60$

Second: Complete the following:

1 $7,480 \times 7 = 7 \times (\text{.....} + \text{.....} + \text{.....}) =$

2 $23 \times 46 = (20 \times \text{.....}) + (20 \times \text{.....}) + (3 \times \text{.....}) + (3 \times \text{.....})$

3 $\times$ = $(20 \times 500) + (20 \times 6) + (4 \times 500) + (4 \times 6)$

4 $3 \times \text{.....} = 3 \times (6,000 + 200 + 30)$ 5 $2 \times 505 = (2 \times \text{.....}) + (2 \times \text{.....})$

Third: Multiply using the **Distributive Property**:

1 $2 \times 89 =$

2 $45 \times 89 =$

3 $627 \times 43 =$



Assessment on Concept 1

First: Choose the correct answer:

1 $5 \times 1,000 =$

a 50

b 500

c 5,000

d 50,000

2 $25 \times 80 =$

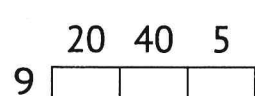
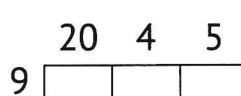
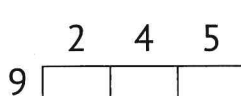
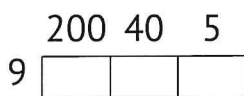
a $2 \times 10,000$

b $2 \times 1,000$

c 2×100

d 2×10

3 The area model that represents $(9 \times 200) + (9 \times 40) + (9 \times 5)$ is



4 The multiplication problem that the opposite model represents is 60 9

a 46×29

b 49×62

c 42×69

d 26×94

40		
2		

5 The multiplication problem that the opposite model represents is

a 12×32

b 12×302

c 102×302

d 102×32

3,000	20
600	4

Second: Complete the following:

1 $8 \times$ = 80,000

2 $1,000 \times$ = 7,000

3 $\times$ = $(10 \times 50) + (10 \times 7) + (2 \times 50) + (2 \times 7)$

4 $9 \times$ = $9 \times (600 + 20 + 3)$ 5 $7 \times 903 = (7 \times$ $) + (7 \times$ $)$

Third: Solve the following problems using the mentioned strategy:

1 2×47 (Distributive Property)

2 14×23 (Area Model)

Fourth: Answer the following:

Omar owns 12 buses to transport tourists. Each bus can carry 25 passengers. How many passengers can Omar carry each day if each bus is full?

Unit ³ Multiplication with Whole Numbers

Concept 3.2

Multiplying 4-Digit Numbers by 2-Digit Numbers

Lessons 3-5

1 Find the product using the **standard algorithm for multiplication**:

$$\begin{array}{r} \boxed{1} \quad 82 \\ \times \quad 4 \\ \hline \end{array}$$

$$\begin{array}{r} \boxed{2} \quad 608 \\ \times \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} \boxed{3} \quad 264 \\ \times \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} \boxed{4} \quad 9324 \\ \times \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} \boxed{5} \quad 39 \\ \times \quad 25 \\ \hline \\ + \quad \hline \end{array}$$

$$\begin{array}{r} \boxed{6} \quad 75 \\ \times \quad 36 \\ \hline \\ + \quad \hline \end{array}$$

$$\begin{array}{r} \boxed{7} \quad 306 \\ \times \quad 18 \\ \hline \\ + \quad \hline \end{array}$$

$$\begin{array}{r} \boxed{8} \quad 617 \\ \times \quad 54 \\ \hline \\ + \quad \hline \end{array}$$

$$\begin{array}{r} \boxed{9} \quad 4,107 \\ \times \quad 36 \\ \hline \\ + \quad \hline \end{array}$$

$$\begin{array}{r} \boxed{10} \quad 6,073 \\ \times \quad 48 \\ \hline \\ + \quad \hline \end{array}$$

$$\begin{array}{r} \boxed{11} \quad 8,347 \\ \times \quad 76 \\ \hline \\ + \quad \hline \end{array}$$

$$\begin{array}{r} \boxed{12} \quad 9,678 \\ \times \quad 32 \\ \hline \\ + \quad \hline \end{array}$$

2 Find the product using the area model:

1 $9,532 \times 12 =$ _____

2 $6,324 \times 25 =$ _____

3 $3,214 \times 37 =$ _____

4 $6,312 \times 72 =$ _____

5 $9,231 \times 28 =$ _____

6 $6,324 \times 37 =$ _____

3 Find the product using the partial products model:

1 $24 \times 34 =$ _____

2 $37 \times 21 =$ _____

3 $62 \times 206 =$ _____

4 $73 \times 215 =$ _____

5 $42 \times 2,034 =$ _____

6 $36 \times 6,415 =$ _____

4 **Estimate** the product of the multiplication, and then find the **actual product**:

1 $7,325 \times 12$

Actual product

Estimate

.....	→	
X	→	X
.....		
+		
.....		

2 $4,537 \times 37$

Actual product

Estimate

.....	→	
X	→	X
.....		
+		
.....		

3 $2,314 \times 14$

Actual product

Estimate

.....	→	
X	→	X
.....		
+		
.....		

4 $6,324 \times 34$

Actual product

Estimate

.....	→	
X	→	X
.....		
+		
.....		

5 **Answer the following:**

1 Each river bus can carry **22** passengers at a time.

What is the maximum number of passengers that the river bus can carry in **25** trips?

.....

.....

- 2** A rectangular piece of land has a length of **256** meters, and a width of **62** meters. Find its area.
-
-
- 3** Khaled bought **34** meters of cloth. The price of one meter is **9,560** piasters. What is the price of the cloth that Khaled bought?
-
-
- 4** A bus is **1,285** centimeters long. How long are **21** buses?
-
-
- 5** Marwan bought a car, and agreed with the owner of the car showroom to pay for it in **12** equal installments. If the value of each installment is **9,865** pounds, what is the price of the car?
-
-
- 6** Mona saves **1,023** pounds every month. What is the total amount that Mona saves in **18** months?
-
-
- 7** **16** people participated in an exhibition, and each won **8,234** pounds. How much did they all win?
-
-
- 8** If a bag of fruit has a mass of **2,445** grams, what is the mass of **45** similar bags?
-
-



Assessment on Concept 2

First: Choose the correct answer:

1 The problem that represents the opposite area model is

- ☐ a $5,403 \times 67$ ☐ b $5,043 \times 67$
☐ c $5,430 \times 67$ ☐ d 543×67

	5,000	400	3
60			
7			

2 The problem that represents the opposite area model is

- ☐ a $3,502 \times 43$ ☐ b $3,052 \times 43$
☐ c $3,520 \times 43$ ☐ d 352×43

120,000	2,000	80
9,000	150	6

3 The model that represents $6,350 \times 73$ is

	6,000	300	50
70			
3			

a

	6,000	300	5
70			
3			

b

	6,000	30	5
70			
3			

c

	600	30	5
70			
3			

d

4 $3,006 \times 25 =$

- ☐ a 21,042 ☐ b 90,000 ☐ c 7,650 ☐ d 75,150

5 $2,300 \times 30 =$

- ☐ a 69,000 ☐ b 6,900 ☐ c 60,900 ☐ d 96,000

Second: Solve the following problems using the mentioned strategy:

1 $5,080 \times 23$

(Distributive Property)

.....

.....

.....

.....

2 $9,007 \times 64$

(Standard Algorithm)

.....

.....

.....

.....

3 $2,125 \times 74$

(Area Model)

.....

.....

.....

.....

Third: Answer the following:

- Huda bought **18** kg of bananas; the price of a kilogram is **15** pounds. She then bought **18** kilograms of mangoes; the price of a kilogram is **25** pounds. What is the total amount that Huda paid?

.....

Theme

2

Mathematical Operations and Algebraic Thinking

Theme Units 

Unit



Division with Whole Numbers

Concept 4.1: Models for Division

Concept 4.2: Dividing by 2-Digit
Divisors

Unit



Multiplication and Division with Decimals

Concept 5.1: Multiplying Decimals

Concept 5.2: Dividing Decimals

Unit



Numerical Expressions and Patterns

Concept 6.1: Evaluating
Numerical
Expressions and
Patterns

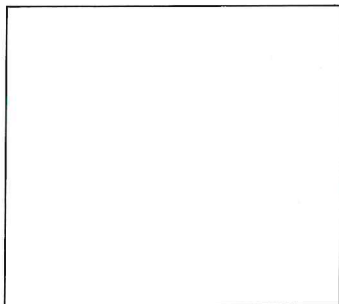
Unit ⁴ Division with Whole Numbers

Concept 4.1 Models for Division

Lessons 1&2

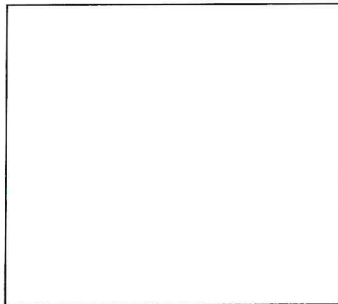
1 Divide using the **area model**:

1 $96 \div 4 = \dots\dots\dots$



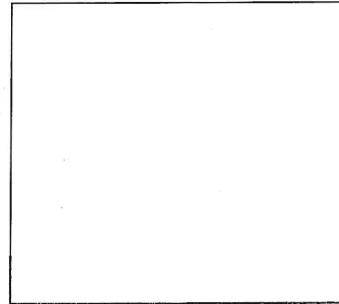
.....
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2 $87 \div 5 = \dots\dots\dots$



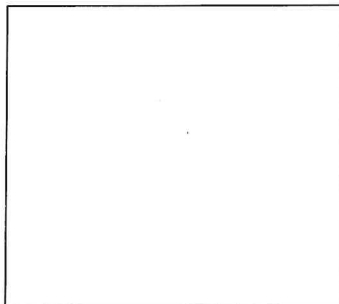
.....
.....

3 $85 \div 3 = \dots\dots\dots$



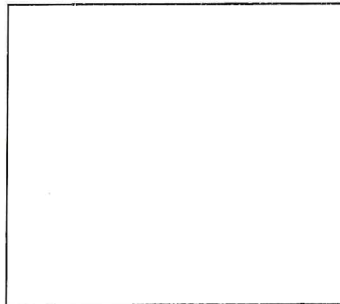
.....
.....

4 $465 \div 5 = \dots\dots\dots$



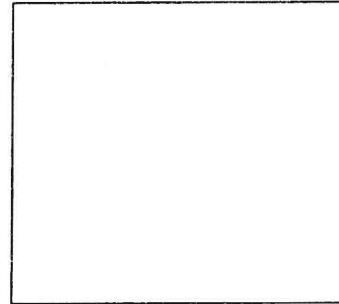
.....
.....

5 $378 \div 6 = \dots\dots\dots$



.....
.....

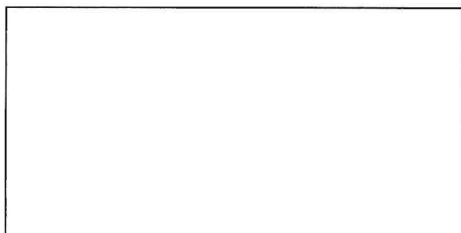
6 $358 \div 4 = \dots\dots\dots$



.....
.....

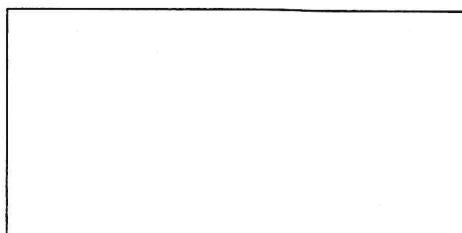
Unit 4 | Division with Whole Numbers

7 $946 \div 2 =$



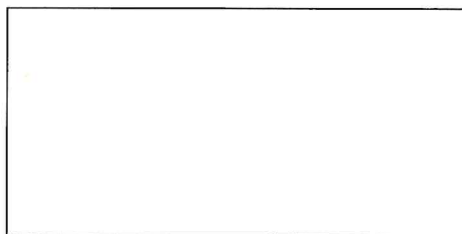
.....
.....

8 $861 \div 7 =$



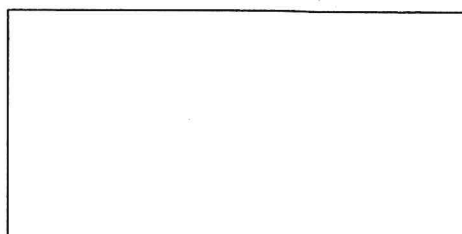
.....
.....

9 $898 \div 8 =$



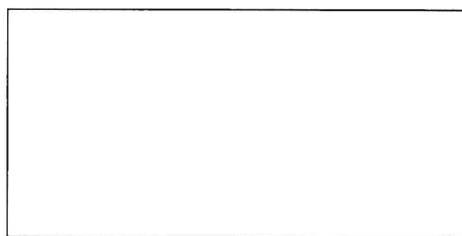
.....
.....

10 $1,378 \div 2 =$



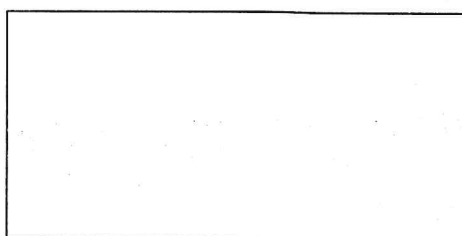
.....
.....

11 $2,754 \div 3 =$



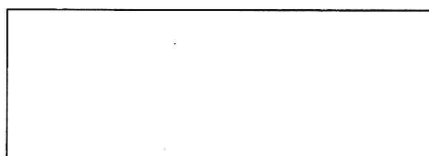
.....
.....

12 $3,846 \div 5 =$



.....
.....

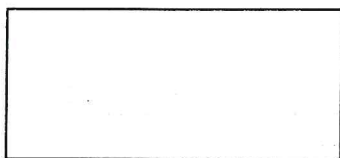
13 $8,444 \div 6 =$



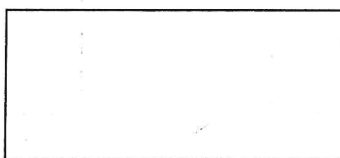
.....
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2 Divide using the **area model**:

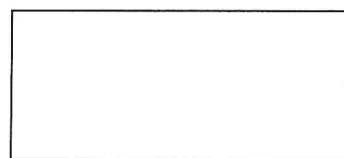
1 $705 \div 15 = \dots\dots\dots$



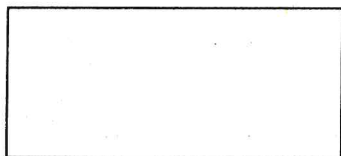
2 $882 \div 13 = \dots\dots\dots$



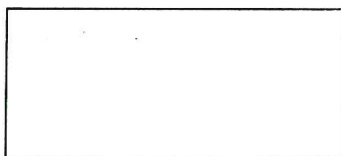
3 $714 \div 21 = \dots\dots\dots$



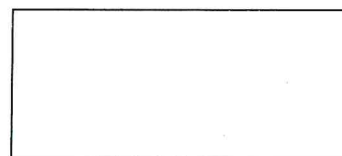
4 $1,530 \div 34 = \dots\dots\dots$



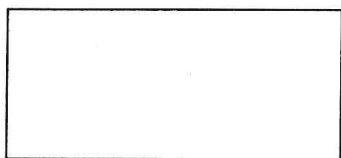
5 $1,512 \div 24 = \dots\dots\dots$



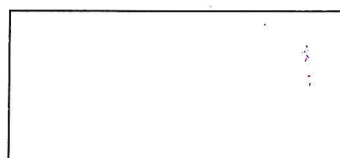
6 $1,120 \div 32 = \dots\dots\dots$



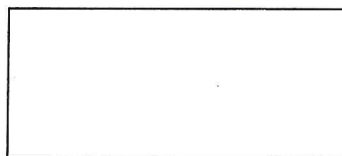
7 $7,584 \div 32 = \dots\dots\dots$



8 $7,175 \div 35 = \dots\dots\dots$



9 $16,779 \div 47 = \dots\dots\dots$



10 $32,144 \div 82 =$

--

11 $23,595 \div 39 =$

--

12 $67,814 \div 41 =$

--

13 $64,158 \div 52 =$

--

3 Complete the **area model**, then find the **quotient**:

1

	20	4
	552	.....
23	-	-
		

..... $\div$ =

2

	60	3
	1,522	.....
24	-	-
		

..... $\div$ =

3

	4,635	135
	- 4,500	- 135
45	.....	.....
	135	000

..... $\div$ =

4

	200		
	7,776	.....	.....
32	-	-	-
			

..... $\div$ =

5

	100		
	1,856	356	56
	- 1,500	- 300	- 45
.....			
	356	56	11

..... $\div$ =

6

	10	3
		
	- 9,600	.....
32	.....	.....
	416	.....

..... $\div$ =

7

100	100	40	5
8,575			
35 -	-	-	-

..... ÷ =

8

300	30	30	3
7,631			
21 -	-	-	-

..... ÷ =

4 Complete the **area models**, then complete the **table**:

Area Model		Dividend	Divisor	Quotient	Remainder
1		56,160	45		
2	200 16,817 - ----- ----- 300 ----- ----- ----- 40 ----- ----- ----- 2 ----- ----- -----				
3	53,328 - 48,000 ----- ----- 5,328 - 4,800 ----- ----- 528 - 480 ----- ----- 48 - 48 ----- 00				
4			72	357	12
5	100 ----- ----- ----- 100 ----- ----- ----- 20 ----- ----- ----- 20 ----- ----- 12				

5 Estimate the **quotient**, then find the **actual result**. Use the strategy you prefer:

1 $3,248 \div 8$

Actual result

$$3,248 \div 8$$



Estimate = $\dots \div \dots = \dots$

2 $6,884 \div 6$

Actual result

$$6,884 \div 6$$



Estimate = $\dots \div \dots = \dots$

3 $36,024 \div 9$

Actual result

$$36,024 \div 9$$



Estimate = $\dots \div \dots = \dots$

4 $22,425 \div 65$

Actual result

$$22,425 \div 65$$



Estimate = $\dots \div \dots = \dots$

5 $3,892 \div 83$

Actual result

$$3,892 \div 83$$



Estimate = $\dots \div \dots = \dots$

6 $3,511 \div 72$

Actual result

$$3,511 \div 72$$



Estimate = $\dots \div \dots = \dots$

7 $9,888 \div 24$

Actual result

$$9,888 \div 24$$

Estimate = $\dots \div \dots = \dots$

8 $107,310 \div 42$

Actual result

$$107,310 \div 42$$

Estimate = $\dots \div \dots = \dots$

9 $11,310 \div 45$

Actual result

$$11,310 \div 45$$

Estimate = $\dots \div \dots = \dots$

10 $16,324 \div 53$

Actual result

$$16,324 \div 53$$

Estimate = $\dots \div \dots = \dots$

في
اللغة
العربية
للف الخامس الابتدائي

أحرص
على اقتناء كتاب
الأستاذ

Assessment

on Lessons 1&2

First: Choose the correct answer:

- 1 The division problem that expresses the opposite model is

(a) $1,960 \div 8 = 2,225$ (b) $360 \div 8 = 245$
 (c) $1,960 \div 8 = 245$ (d) $1,960 \div 8 = 605$

	200	20	20	5
	1,960	360	200	40
8	- 1,600	- 160	- 160	- 40
	360	200	40	0

- 2 The divisor in the corresponding model is

(a) 14 (b) 16
 (c) 226 (d) 2

	10	6
	226	86
14	- 140	- 84
	86	2

- 3 The remainder of the division in the opposite model is

(a) 12 (b) 326
 (c) 72 (d) 0

	300	20	6
	3,912	312	72
12	- 3,600	- 240	- 72
	312	72	0

- 4 The quotient in the opposite model is

(a) 435 (b) 4,305
 (c) 4,350 (d) 4,035

	4,000	30	5
	254,205	2,205	315
63	- 252,000	- 1,890	- 315
	2,205	315	0

- 5 If $45 \times 12 = 540$, then the remainder of $545 \div 12$ is

(a) 5 (b) 12 (c) 45 (d) 540

Second: Use the **area model** to solve the following problems:

- 1 $6,542 \div 8$

- 2 $3,634 \div 12$

- 3 $144,370 \div 45$

Third: Answer the following:

- 1 A red hat costs **400** LE, which is **4** times as much as a blue hat. How much does a blue hat cost?
- 2 There are **138** job applicants for a vacancy. They will need to place the applicants in **6** rooms while they fill out the application. How many people will be in each room?



Assessment on Concept 1

First: Choose the correct answer :

1 The quotient in the opposite model is

- a 1,226 b 24
c 3,504 d 146

	100	20	20	6
24	3,504	1,104	624	144
	- 2,400	- 480	- 480	- 144
	1,104	624	144	0

2 The remainder of division in the opposite model is

- a 15 b 6,154
c 410 d 4

	400	10
15	6,154	154
	- 6,000	- 150
	154	4

3 If $45 \times 24 = 1,080$, then $10,800 \div 24 =$

- a 45 b 24 c 450 d 240

4 If $26 \times 155 + 20 = 4,050$, then the remainder of $4,050 \div 26$ is

- a 20 b 26 c 155 d 4,050

Second: Divide using the strategy you prefer:

1 $45,240 \div 9 =$

2 $23,154 \div 6 =$

3 $3,096 \div 12 =$

4 $78,321 \div 26 =$

Third: Complete the following:

1 $45,000 \div 5 =$

2 $40,000 \div \dots = 8,000$

3 $\dots \div 34 = 10,000$

4 $\dots \div 12 = 3,000$

Fourth: Answer the following:

1 The profit of one of the shops is **7,280** pounds, and they will be distributed equally among **5** people. What is the share of each person?

.....

2 If **168** pupils are divided equally into groups of **12** pupils each, how many groups can we get?

.....

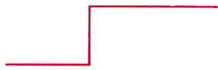
Unit 4 Division with Whole Numbers

Concept 4.2 Dividing by 2-Digit Divisors

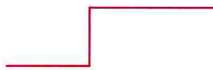
Lessons 3-5

1 Divide using the **standard division algorithm**:

1 $75 \div 5 = \dots\dots$



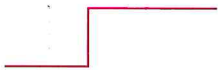
2 $86 \div 3 = \dots\dots$



3 $156 \div 6 = \dots\dots$



4 $834 \div 4 = \dots\dots$



5 $756 \div 3 = \dots\dots$



6 $917 \div 7 = \dots\dots$



7 $1,475 \div 5 = \dots\dots$



8 $3,778 \div 8 = \dots\dots$



9 $4,935 \div 7 = \dots\dots$



10 $8,016 \div 4 = \dots\dots\dots$



11 $9,177 \div 3 = \dots\dots\dots$

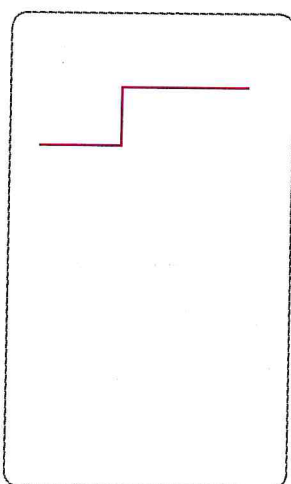


12 $42,036 \div 6 = \dots\dots\dots$

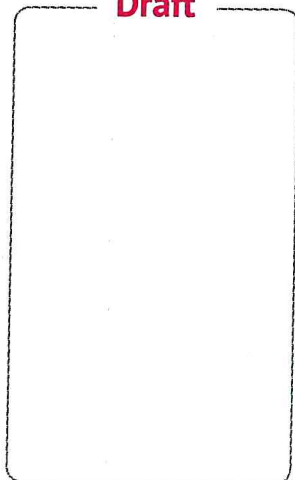


2 Divide using the **standard division algorithm**:

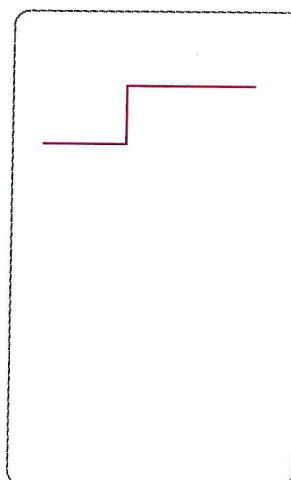
1 $360 \div 15 = \dots\dots\dots$



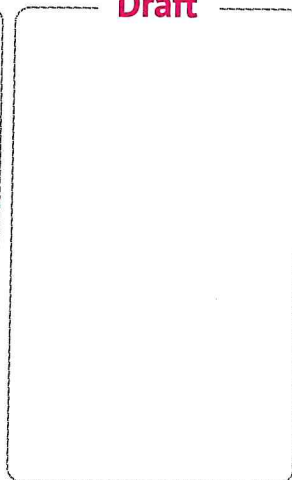
Draft



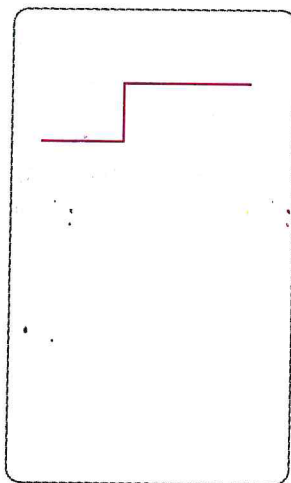
2 $858 \div 78 = \dots\dots\dots$



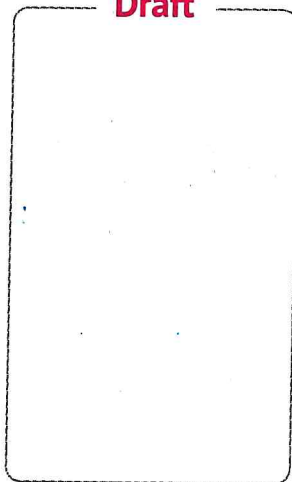
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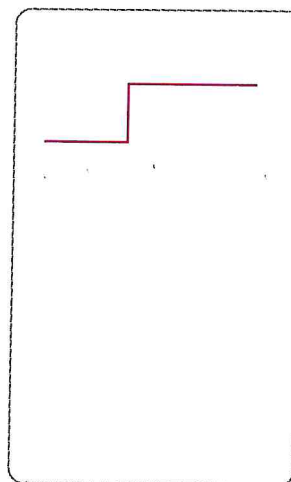
3 $8,000 \div 64 = \dots\dots\dots$



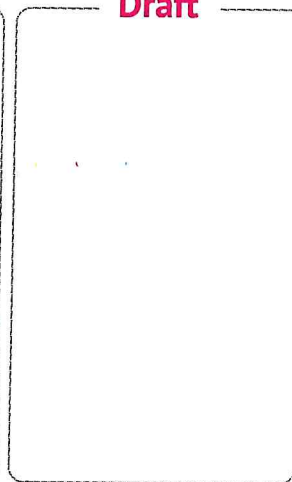
Draft



4 $2,870 \div 14 = \dots\dots\dots$



Draft



Unit 4 | Division with Whole Numbers

5 $3,636 \div 12 = \dots\dots\dots$

Draft

6 $4,600 \div 37 = \dots\dots\dots$

Draft

7 $4,935 \div 47 = \dots\dots\dots$

Draft

8 $14,552 \div 68 = \dots\dots\dots$

Draft

9 $15,632 \div 45 = \dots\dots\dots$

Draft

10 $105,821 \div 41 = \dots\dots\dots$

Draft

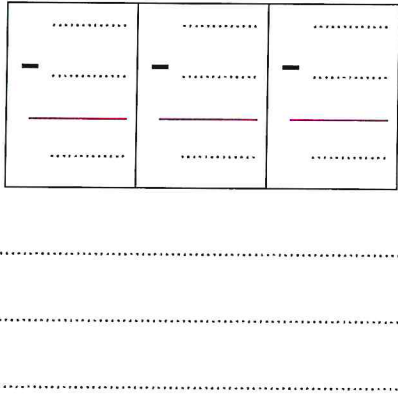
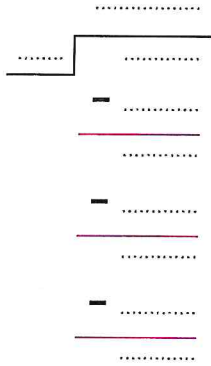
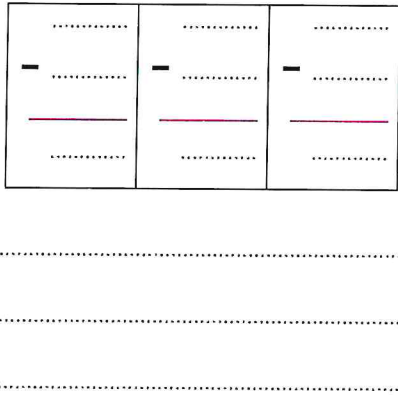
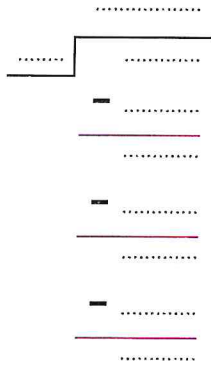
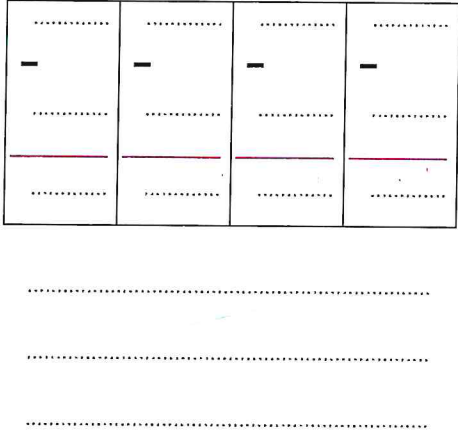
11 $57,564 \div 26 = \dots\dots\dots$

Draft

12 $56,373 \div 23 = \dots\dots\dots$

Draft

3 Divide using different division strategies:

Division	Area Model	Standard Division Algorithm
1 $10,455 \div 85 = \dots\dots\dots$		
2 $3,213 \div 17 = \dots\dots\dots$		
3 $50,312 \div 38 = \dots\dots\dots$		

 4 Complete the following:

- 
- 
- 
- 
- 
- 1 If $35 \times 13 = 455$, then $455 \div 13 =$
 - 2 If $6,048 \div 24 = 252$, then $24 \times 252 =$
 - 3 If $61 \times 16 = 976$, then $980 \div 61 = 16$ and the remainder is
 - 4 If $2,000 \div 54 = 37$, and the remainder is 2, then $37 \times 54 =$
 - 5 The number that if divided by 23 has a quotient of 212 is
 - 6 The number that if divided by 34 has a quotient of 102, and the remainder is 11 is
 - 7 The number that if multiplied by 12 gives the result 1,260 is
 - 8 $23 \times$ = 2,346
 - 9 $2,553 \div$ = 23
 - 10 $\div 14 = 1,003$

 5 Answer the following:

- 1 A bakery made **140** servings of baklava for a party. If each baking tray holds **12** servings of baklava, how many trays will be needed to hold all the baklava?
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.....
.....

- 2 A textile factory made **11,655** meters of cotton. The factory needs to distribute them equally among **37** fabric stores. How many meters of fabric will each store get?
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.....

- 3 An architect is designing a bridge. The architect has two choices for materials. Mighty Steel sells 5 tons (t) of steel for 100,000 LE. Silver Strong Steel sells 3 tons of steel for 70,000 LE.

If the architect needs 15 tons of steel, how much money will be saved by purchasing from Mighty Steel?

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- 4 Zeinab ordered 12 packages of fabric squares to make a quilt. Each package has 18 fabric squares, and Zeinab used all the squares for her quilt. Reem made a quilt that was 13 squares wide by 13 squares long. How many fewer squares did Reem use than Zeinab for her quilt?

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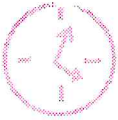
.....

- 5 Nagi sold a total of 30 boxes of sports T-shirts at his store on Monday. These boxes contained only basketball T-shirts and football T-shirts. Each box contained 25 sports T-shirts. He earned 3 LE for each sports T-shirt he sold. He earned a total of 1,134 LE from the football T-shirts he sold. How much money did Nagi earn from the basketball T-shirts he sold?

.....

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- 
- 6 If the total price of 25 books is 1,875 pounds, what is the price of 36 books?



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- 
- 7 Hussam bought a car and paid 85,500 pounds as a down payment (part of the price), and the rest of the car's price is paid in 24 equal monthly installments. If the total price of the car is 163,500 pounds, what is the value of each installment?

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- 
- 8 A school has 456 boys and 419 girls. It is intended to divide boys and girls equally into 25 classes in the school. How many students will be in each class?

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.....

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- 
- 
- 9 A rectangular garden with dimensions of 124 meters by 85 meters is divided into rectangular planting basins, each of which is 62 square meters. How many basins are in the garden?



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Assessment on Concept 2

First: Choose the correct answer:

- 1 The quotient in the following division model is

- (a) 5,248
(b) 12
(c) 4
(d) 437

$$\begin{array}{r} 0437 \\ 12 \overline{) 5,248} \\ \underline{- 48} \\ 44 \\ \underline{- 36} \\ 88 \\ \underline{- 84} \\ 4 \end{array}$$

- 2 The divisor in the following division model is

- (a) 4,528
(b) 25
(c) 3
(d) 181

$$\begin{array}{r} 0181 \\ 25 \overline{) 4,528} \\ \underline{- 25} \\ 202 \\ \underline{- 200} \\ 28 \\ \underline{- 25} \\ 3 \end{array}$$

- 3 The remainder in the following division model is

- (a) 954
(b) 32
(c) 26
(d) 29

$$\begin{array}{r} 029 \\ 32 \overline{) 954} \\ \underline{- 64} \\ 314 \\ \underline{- 288} \\ 26 \end{array}$$

- 4 From the following division model, $802 = \dots\dots\dots$

- (a) $22 \times 36 + 10$
(b) $22 + 36 \times 10$
(c) $22 \times 36 \times 10$
(d) $22 + 36 + 10$

$$\begin{array}{r} 036 \\ 22 \overline{) 802} \\ \underline{- 66} \\ 142 \\ \underline{- 132} \\ 10 \end{array}$$

- 5 $24,000 \div 600 = \dots\dots\dots$

- (a) 4 (b) 40 (c) 400 (d) 4,000

Second: Complete the following:

- 1 If $4 \times 60 = 240$, then $400 \times 600 = \dots\dots\dots$ 2 $450,000 \div \dots\dots\dots = 900$
3 If $24 \times 15 = 360$, then the remainder of $375 \div 15$ is

- 4 If $248 \div 12 = 20$ (R 8), then $12 \times 20 + \dots\dots\dots = 248$. 5 $60 \times 300 = \dots\dots\dots$

Third: Answer the following:

- There were **205** people at a concert. After the concert, **40** people left in cars, the rest of them wanted to go home by a microbus. If the load of each microbus is **11** people, how many minibuses are needed for everyone to get home?

Unit ⁵ Multiplication and Division with Decimals

Concept 5.1

Multiplying Decimals

Lessons 1&2

1 Find the product of:

1 $12 \times 10 =$

2 $9 \times 100 =$

3 $101 \times 1,000 =$

4 $65 \times 0.1 =$

5 $26 \times 0.01 =$

6 $17 \times 0.001 =$

7 $0.5 \times 10 =$

8 $0.75 \times 100 =$

9 $0.256 \times 1,000 =$

10 $0.2 \times 0.1 =$

11 $0.36 \times 0.01 =$

12 $0.12 \times 0.001 =$

13 $3.25 \times 10 =$

14 $4.12 \times 100 =$

15 $3.19 \times 1,000 =$

16 $42.12 \times 0.1 =$

17 $55.12 \times 0.01 =$

18 $36.01 \times 0.001 =$

19 $0.02 \times 10 =$

20 $0.36 \times 100 =$

21 $0.17 \times 1,000 =$

22 $6.35 \times 0.1 =$

23 $42.14 \times 0.01 =$

24 $3.1 \times 0.001 =$

2 Find the product of:

1 $25 \times 0.5 =$

2 $12 \times 0.2 =$

3 $9 \times 1.35 =$

4 $12 \times 0.07 =$

5 $2.6 \times 0.6 =$

6 $17 \times 0.006 =$

7 $3.33 \times 5 =$

8 $9.56 \times 9 =$

9 $253 \times 0.003 =$

10 $0.008 \times 5 =$

- | | |
|------------------------------|------------------------------|
| 11 $4.5 \times 0.09 =$ | 12 $6.35 \times 3 =$ |
| 13 $2.4 \times 12 =$ | 14 $0.45 \times 13 =$ |
| 15 $3.7 \times 22 =$ | 16 $27 \times 2.1 =$ |
| 17 $4.3 \times 52 =$ | 18 $20.5 \times 12 =$ |
| 19 $12.4 \times 11 =$ | 20 $45 \times 2.07 =$ |
| 21 $0.365 \times 23 =$ | 22 $0.15 \times 124 =$ |
| 23 $3.02 \times 12 =$ | 24 $1.12 \times 36 =$ |

3 Complete the following:

- | | |
|---------------------------------|----------------------------------|
| 1 $\times 10 = 50$ | 2 $\times 100 = 3,300$ |
| 3 $\times 1,000 = 20,000$ | 4 $\times 0.1 = 0.7$ |
| 5 $\times 0.01 = 0.03$ | 6 $\times 0.001 = 0.002$ |
| 7 $\times 10 = 5$ | 8 $\times 100 = 50$ |
| 9 $\times 1,000 = 700$ | 10 $\times 0.1 = 0.24$ |
| 11 $\times 0.01 = 0.024$ | 12 $\times 0.001 = 0.017$ |
| 13 $42 \times$ $= 420$ | 14 $23 \times$ $= 2,300$ |
| 15 $65 \times$ $= 65,000$ | 16 $14 \times$ $= 1.4$ |
| 17 $6.3 \times$ $= 0.063$ | 18 $32 \times$ $= 0.032$ |
| 19 $0.05 \times$ $= 50$ | 20 $63.7 \times$ $= 6,370$ |
| 21 $2.05 \times$ $= 20.5$ | 22 $0.06 \times$ $= 0.006$ |
| 23 $3.7 \times$ $= 3,700$ | 24 $20 \times$ $= 0.02$ |

4 Compare using (<, =, or >):

- | | |
|---|--|
| 1 25×0.1 <input type="text"/> 0.25×10 | 2 50×0.01 <input type="text"/> 0.5×100 |
| 3 73.2×0.1 <input type="text"/> 0.732×100 | 4 36×0.1 <input type="text"/> 3.6×10 |
| 5 56×11 <input type="text"/> 5.6×11 | 6 45×0.12 <input type="text"/> 4.5×12 |

Unit 5 | Multiplication and Division with Decimals

- 7 1.44×10 1.2×12 8 75×0.01 0.25×3
 9 15×0.15 2.25×0.1 10 9×0.9 8.1×0.01

5 Match:

$$25 \times 10$$

1

$$25 \times 100$$

2

$$25 \times 0.1$$

3

$$25 \times 0.01$$

4

5

$$2.5 \times 1,000$$

6

$$2.5 \times 0.1$$

7

$$2.5 \times 100$$

8

$$0.25 \times 10$$

6 Complete the following:

- 1 If $6 \times 25 = 150$, then $6 \times 0.25 =$
- 2 If $8 \times 50 = 400$, then $0.8 \times 5 =$
- 3 If $5 \times 24 = 120$, then $5 \times 2.4 =$
- 4 If $1.2 \times 25 = 30$, then $12 \times 0.25 =$
- 5 If $0.24 \times 5 = 1.2$, then $2.4 \times 5 =$
- 6 When multiplying by 0.01, we move the decimal point places to the
- 7 When multiplying by, we move the decimal point one place to the right.
- 8 When multiplying by, we move the decimal point 3 places to the left.
- 9 When multiplying 2.45×100 , the place value of 4 changes from to
- 10 $1.5 \times$ = 30 11 $10.5 \times$ = 1.05 12 $0.25 \times$ = 200
- 13 $7.5 \times$ = 15 14 $11 \times$ = 12.1 15 $0.31 \times$ = 0.93

Assessment

on Lessons 1&2

First: Find the product of:

1 $8 \times 100 = \dots\dots\dots$

2 $3 \times 0.1 = \dots\dots\dots$

3 $45 \times 0.001 = \dots\dots\dots$

4 $3.5 \times 4 = \dots\dots\dots$

5 $5.25 \times 100 = \dots\dots\dots$

Second: Compare using (<, =, or >):

1 5×0.3

0.5×3

2 24×0.2

8×0.06

3 1.2×100

0.12×10

4 635×0.1

6.35×100

5 825×0.01

8.25×10

Third: Match:

1 2.35×10

a 23.5×10

2 2.35×0.1

b 23.5×1

3 2.35×100

c 23.5×100

4 $2.35 \times 1,000$

d 23.5×0.01

Fourth: Complete the following:

1 If $5 \times 24 = 120$, then $5 \times 2.4 = \dots\dots\dots$

2 If $0.8 \times 421 = 336.8$, then $8 \times 4.21 = \dots\dots\dots$

3 When multiplying a whole number by 0.001, we move the decimal point places to the

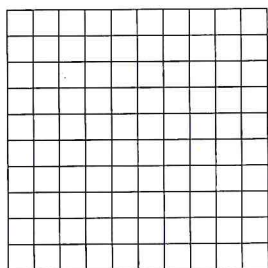
4 $0.5 \times \dots\dots\dots = 0.05$

5 $\dots\dots\dots \times 100 = 9.2$

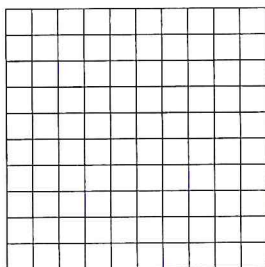
Lessons 3&4

1 Use the Base 10 grids to find the product:

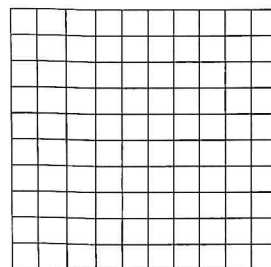
1 $0.2 \times 0.3 =$



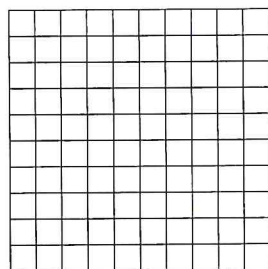
2 $0.4 \times 0.4 =$



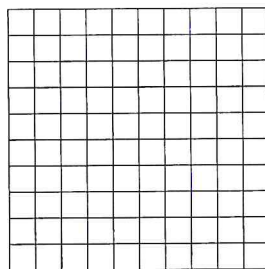
3 $0.6 \times 0.8 =$



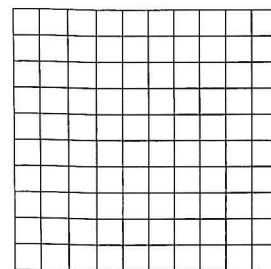
4 $0.7 \times 0.1 =$



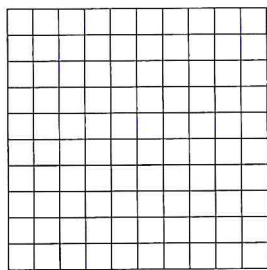
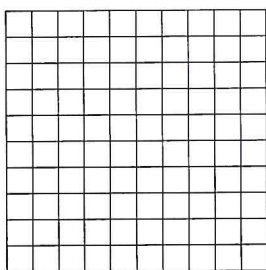
5 $0.3 \times 0.4 =$



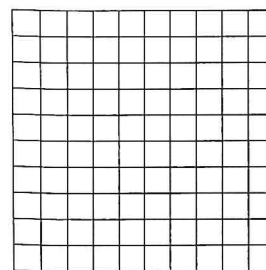
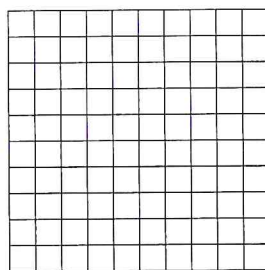
6 $0.5 \times 0.9 =$



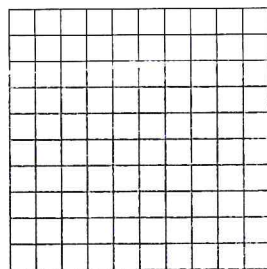
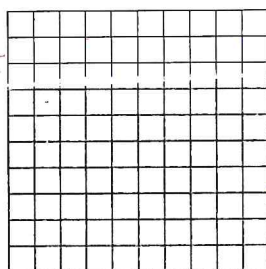
7 $1.4 \times 0.2 =$



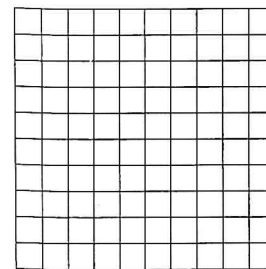
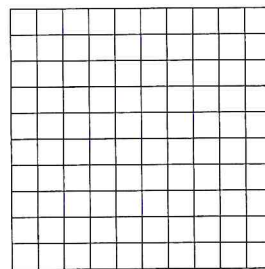
8 $1.5 \times 0.3 =$



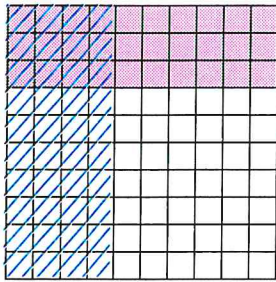
9 $1.1 \times 0.7 =$



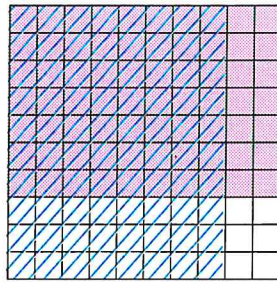
10 $0.3 \times 1.6 =$



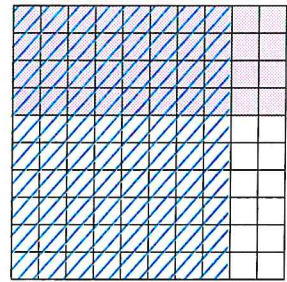
- 2 Write the **multiplication problem** represented by each of the following **Base 10 grids**, then find the **result**:



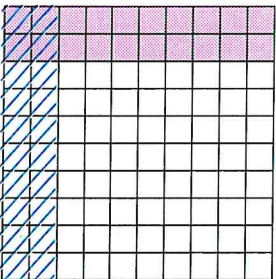
1 $\text{ } \times \text{ } = \text{ }$



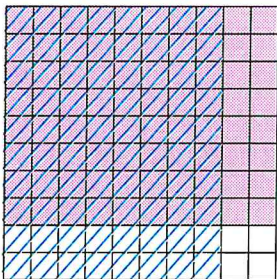
2 $\text{ } \times \text{ } = \text{ }$



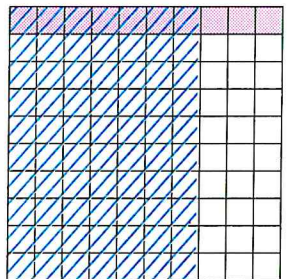
3 $\text{ } \times \text{ } = \text{ }$



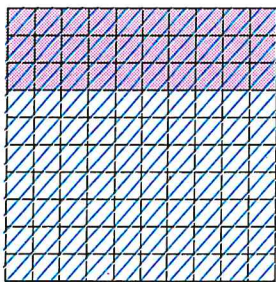
4 $\text{ } \times \text{ } = \text{ }$



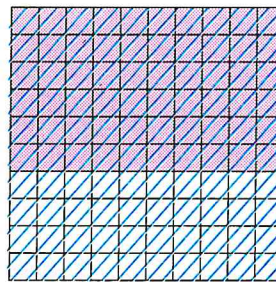
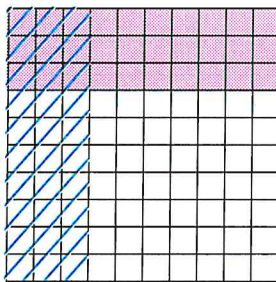
5 $\text{ } \times \text{ } = \text{ }$



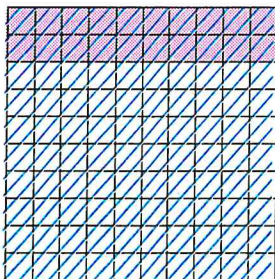
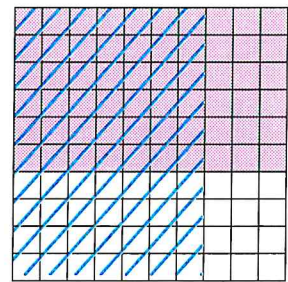
6 $\text{ } \times \text{ } = \text{ }$



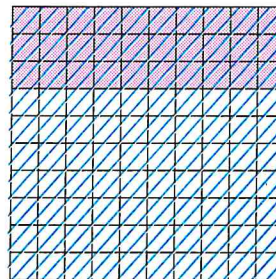
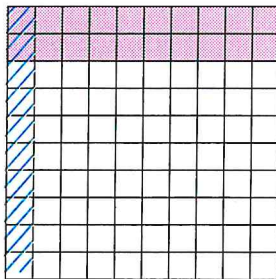
7 $\text{ } \times \text{ } = \text{ }$



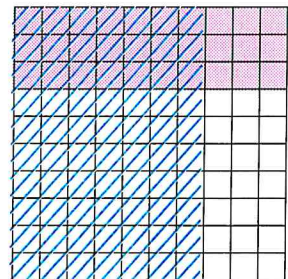
8 $\text{ } \times \text{ } = \text{ }$



9 $\text{ } \times \text{ } = \text{ }$



10 $\text{ } \times \text{ } = \text{ }$



3 Multiply using the area models:

1 0.9×4.2

--	--

2 0.08×4.7

--	--

3 6×20.3

--	--

4 0.8×3.6

--	--

5 0.6×3.04

--	--

6 9×20.3

--	--

7 0.12×4.5

8 63×0.74

9 0.24×2.7

10 4.5×63

11 40.5×3.5

12 14×0.207

13 3.5×42.4

14 3.7×30.23

15 0.14×17.3

16 3.57×1.7

4 Write the **multiplication problems** that express the following **area models**, and then solve them:

1 $\times$ =

0.5	0.02
0.4	

.....

.....

2 $\times$ =

2	0.3
7	

.....

.....

3 $\times$ =

20	1	0.4
0.3		

.....

.....

4 $\times$ =

4	0.3
0.2	
0.07	

.....

.....

5 $\times$ =

40	5
3	
0.5	

.....

.....

6 $\times$ =

0.5	0.04
0.9	
0.02	

.....

.....

7 $\times$ =

0.1	0.04	0.002
40		
7		

.....

.....

8 $\times$ =

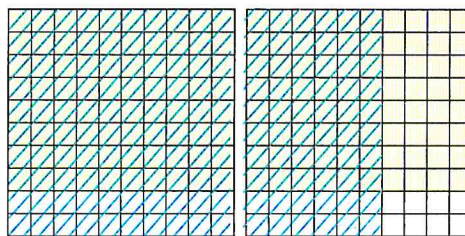
3	0.4	0.09
4		
0.7		

.....

.....

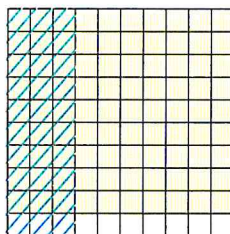
5 Choose the correct answer:

- 1 The multiplication problem that represents the following model is



(16 x 80 or 1.6 x 0.8 or 160 x 80 or 1.6 x 8)

- 2 The multiplication problem that represents the following model is



(3 x 9 or 30 x 0.9 or 30 x 90 or 0.3 x 0.9)

- 3 The multiplication problem that represents the opposite model is

(50.3 x 7.32 or 5.3 x 7.32 or 5.3 x 73.2 or 50.3 x 73.2)

	7	0.3	0.02
50			
0.3			

- 4 The multiplication problem that represents the opposite model is

	20	2	0.3
5			
0.07			

(5.7 x 22.3 or 57 x 223 or 5.07 x 202.3 or 5.07 x 22.3)

- 5 If $12 \times 45 = 540$, then $\times 0.45 = 540$.

(1.2 or 0.12 or 120 or 1,200)

- 6 If $1.3 \times 7.2 = 9.36$, then $13 \times \dots = 93.6$.

(0.72 or 7.2 or 72 or 720)

- 7 35×0.2 3.5×2

(> or = or < or $\leq$)

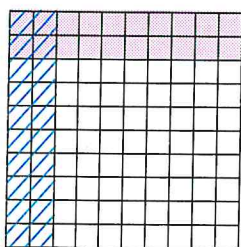
- 8 3.6×0.01 36×10

(> or = or < or $\leq$)

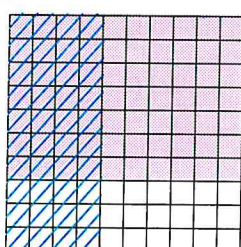
Assessment on Lessons 3&4

First: Write the **multiplication problem** represented by each of the following **Base 10 grids**, then find the **product**:

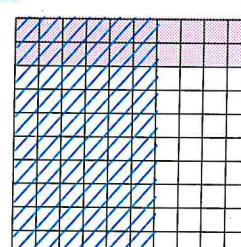
1 $\dots \times \dots = \dots$



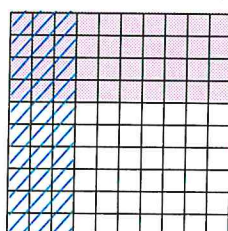
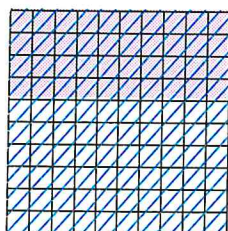
2 $\dots \times \dots = \dots$



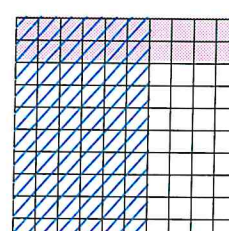
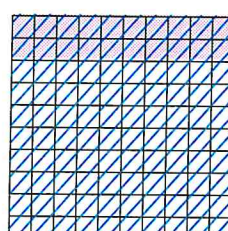
3 $\dots \times \dots = \dots$



4 $\dots \times \dots = \dots$



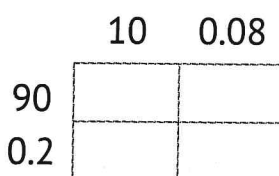
5 $\dots \times \dots = \dots$



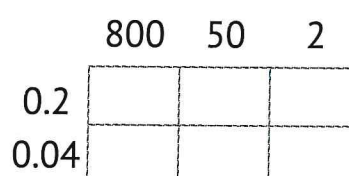
Second: Write the **multiplication problems** that express the following **area models**, and then solve them:



1 $\dots \times \dots = \dots$



2 $\dots \times \dots = \dots$



3 $\dots \times \dots = \dots$

Third: Complete the following:

1 If $2 \times 45 = 90$, then $\dots \times 0.45 = 0.09$. 2 If $5 \times 3 = 15$, then $5 \times \dots = 1.5$.

3 If $625 \times 4 = 2,500$, then $6.25 \times 0.4 = \dots$. 4 If $2.5 \times 1.6 = 4$, then $25 \times 16 = \dots$.

Fourth: Answer the following:

- Marwa is a museum curator. She wants to repaint the museum walls, which are measured in meters. There are **four** walls, each is measuring **3.8 m × 15.2 m**. Estimate how many square meters she needs to cover with paint. Explain your answer.

Lessons 5&6

1 Multiply (35×12) using the **standard algorithm**, then complete:

1 $3.5 \times 12 = \dots\dots\dots$

2 $35 \times 0.12 = \dots\dots\dots$

3 $3.5 \times 1.2 = \dots\dots\dots$

4 $0.35 \times 1.2 = \dots\dots\dots$

5 $3.5 \times 0.12 = \dots\dots\dots$

6 $0.35 \times 12 = \dots\dots\dots$

7 $35 \times 1.2 = \dots\dots\dots$

8 $0.35 \times 0.12 = \dots\dots\dots$

	35
$\times$	12
$+$	

2 Multiply (105×24) using the **standard algorithm**, then complete:

1 $105 \times 2.4 = \dots\dots\dots$

2 $1.05 \times 24 = \dots\dots\dots$

3 $105 \times 0.24 = \dots\dots\dots$

4 $0.105 \times 24 = \dots\dots\dots$

5 $105 \times 0.024 = \dots\dots\dots$

6 $10.5 \times 2.4 = \dots\dots\dots$

7 $10.5 \times 24 = \dots\dots\dots$

8 $1.05 \times 0.24 = \dots\dots\dots$

	105
$\times$	24
$+$	

3 Multiply using the **standard algorithm**:

1

	36
$\times$	0.7

2

	0.368
$\times$	5

3

	6.07
$\times$	9

4

	115.2
$\times$	0.06

5

	4.57
$\times$	5.9
$+$	

6

	3.336
$\times$	21
$+$	

7

	37.07
$\times$	13
$+$	

8

	12.25
$\times$	3.5
$+$	

9

	6.35
$\times$	1.7
$+$	

10

	3,021
$\times$	0.032
$+$	

11

	20.02
$\times$	3.6
$+$	

12

	3.27
$\times$	24
$+$	

4 Compare using (<, =, or >):

1 2.8×3.4 0.28×34

2 6.3×12 0.63×12

3 6.4×0.37 64×3.7

4 2.2×2.2 0.22×22

5 4.5×0.2 45×20

6 6.34×32 63.4×3.2

7 0.45×0.1 4.5×10

8 67×10.2 67×1.2

9 0.5×0.8 0.2×0.2

10 3.2×3.2 0.32×320

5 Answer the following:

- 1 Nada bought 26 meters of fabric. If the price of one meter is 43.5 pounds, how many pounds did Nada pay?

- 2 Khaled bought 9.5 liters of juice with the price of 12.7 pounds per liter. How many pounds did Khaled pay?

- 3 If a pizza costs 22.25 LE, how much does 12 pizzas of the same kind cost?

- 4 A merchant bought two types of cloth, one at a price of 92.5 pounds per square meter, and the other at a price of 58 pounds per square meter.

If he bought 10 meters of the first type and 6.5 meters of the second type, how many pounds did the merchant pay?

- 5 Malik walked 7.9 km on Friday and 3.6 km on Saturday, then Malik repeated that every weekend for 6 weeks. How many total kilometers did Malik walk in 6 weeks?

Assessment on Lessons 5&6

First: Complete the following:

- 1 If $25 \times 33 = 825$, then $0.25 \times 3.3 = \dots\dots\dots$
- 2 If $137 \times 21 = 2,877$, then $1.37 \times \dots\dots\dots = 2.877$.
- 3 $0.02 \times 0.03 = \dots\dots\dots$
- 4 $0.3 \times \dots\dots\dots = 0.009$
- 5 $0.2 \times 0.3 \times 0.5 = \dots\dots\dots$

Second: Use the **standard algorithm** to multiply:

1

$$\begin{array}{r} 5.6 \\ \times 2.3 \\ \hline \dots\dots\dots \\ + \dots\dots\dots \\ \hline \dots\dots\dots \approx \dots\dots\dots \end{array}$$

(To the nearest **Tenth**)

2

$$\begin{array}{r} 0.73 \\ \times 2.8 \\ \hline \dots\dots\dots \\ + \dots\dots\dots \\ \hline \dots\dots\dots \approx \dots\dots\dots \end{array}$$

(To the nearest **Hundredth**)

3

$$\begin{array}{r} 2.08 \\ \times 62 \\ \hline \dots\dots\dots \\ + \dots\dots\dots \\ \hline \dots\dots\dots \approx \dots\dots\dots \end{array}$$

(To the nearest **whole number**)

Third: If $452 \times 27 = 12,204$, then:

- 1 $4.52 \times 2.7 = \dots\dots\dots$
- 2 $0.452 \times 27 = \dots\dots\dots$
- 3 $45.2 \times 27 = \dots\dots\dots$
- 4 $4.52 \times 2.7 = \dots\dots\dots$
- 5 $4.52 \times 0.27 = \dots\dots\dots$
- 6 $0.452 \times 0.27 = \dots\dots\dots$

Fourth: Compare using (**<**, **=**, or **>**):

- 1 0.8×0.3 0.8×0.03
- 2 54×1.1 0.54×11
- 3 0.45×10 45×0.1
- 4 2.5×2.5 625×0.1

Lessons 7-9

1 Complete:

- 1 8,523 mL = x = liters
- 2 954 mL = x = liters
- 3 25 mL = x = liters
- 4 78 liters = x = mL
- 5 2.5 liters = x = mL
- 6 1.24 liters = x = mL
- 7 23 km = x = meters
- 8 0.753 km = x = meters
- 9 235 m = x = km
- 10 3,235 m = x = km
- 11 32 m = x = cm
- 12 3.35 m = x = cm
- 13 0.12 m = x = dm
- 14 45 cm = x = m
- 15 1,247 cm = x = m
- 16 7.5 dm = x = cm
- 17 7.5 kg = x = g
- 18 85 g = x = kg
- 19 235 mm = x = cm
- 20 2.8 cm = x = mm

2 Choose the correct answer:

- | | | |
|----|-------------------------|-------------------------------------|
| 1 | 6.52 kg = g | (65.2 or 652 or 6,520 or 65,200) |
| 2 | 549 g = kg | (5,490 or 5.49 or 54.9 or 0.549) |
| 3 | 62 mL = L | (620 or 6.2 or 0.62 or 0.062) |
| 4 | 63.5 liters = mL | (635 or 6,350 or 63,500 or 635,000) |
| 5 | 45 cm = meters | (4,500 or 450 or 4.5 or 0.45) |
| 6 | 0.028 meters = cm | (0.28 or 2.8 or 28 or 280) |
| 7 | 3.2 km = m | (32 or 0.32 or 3,200 or 0.032) |
| 8 | 45 meters = km | (0.045 or 4,500 or 4.5 or 450) |
| 9 | 4.5 cm = mm | (45 or 0.45 or 450 or 0.045) |
| 10 | 256 mm = cm | (0.256 or 2.56 or 25.6 or 2,560) |

3 Compare using (<, =, or >):

- | | | | | | | | |
|---|------------|----------------------|----------|----|-----------|----------------------|----------|
| 1 | 45 kg | <input type="text"/> | 4,500 g | 2 | 3.25 cm | <input type="text"/> | 32.5 mm |
| 3 | 2.5 meters | <input type="text"/> | 2,500 cm | 4 | 63 liters | <input type="text"/> | 0.063 mL |
| 5 | 5,000 m | <input type="text"/> | 0.5 km | 6 | 0.02 km | <input type="text"/> | 2,000 mm |
| 7 | 11.5 L | <input type="text"/> | 15.1 L | 8 | 50 cm | <input type="text"/> | 5 mm |
| 9 | 600 m | <input type="text"/> | 6 km | 10 | 0.025 kg | <input type="text"/> | 2.5 g |

4 Put (✓) or (X):

- | | | | | | |
|---|-----------------------|---------|----|----------------------|---------|
| 1 | 78 kg = 7,800 g | () | 2 | 3.5 m = 350 cm | () |
| 3 | 200 mL = 0.2 liters | () | 4 | 63 km = 0.063 g | () |
| 5 | 12.5 meters = 1.25 dm | () | 6 | 1 cm = 0.1 mm | () |
| 7 | 1 cm = 0.01 meters | () | 8 | 25 mL = 0.025 liters | () |
| 9 | 10.2 mm = 1.02 cm | () | 10 | 45.3 L = 0.453 mL | () |

5 Answer the following:

- 1** Eman wants to find out how much her height increased over the year.

In January, her height was **1.34** meters, and by the end of the year, it was **145** centimeters. By how many centimeters did Eman grow in height?

.....

- 2** Hazem bought **7** books; the price of one book is **23.5** pounds. Find what Hazem paid.

.....

.....

- 3** A fruit merchant has **5** boxes of mangoes, each weighing **9.5** kg, and **3** boxes of peaches, each weighing **4,600** grams.

What is the total weight of all the fruits the merchant has?

.....

.....

.....

- 4** Mazen is **1.64** meters tall and Maryam is **145** centimeters tall.

Find the sum of their heights and the difference between them in cm.

.....

.....

- 5** Sami drinks **4** liters of water daily. If he drinks **1.25** liters of water in the morning, and **2,450** milliliters of water in the afternoon, how many liters of water does he drink in the evening?

.....

.....

Assessment on Lessons 7-9

First: Choose the correct answer:

1 78.5 m = cm

- a 785 b 7.85 c 7,850 d 0.785

2 kg = 460 g

- a 0.46 b 460,000 c 4.60 d 4,600

3 5.2 L = mL

- a 0.052 b 0.52 c 52 d 5,200

4 $2.56 \times \dots = 25.6$

- a 10 b 100 c 0.1 d 0.01

5 $0.01 \times \dots = 0.025$

- a 0.25 b 2.5 c 25 d 250

Second: Complete the following:

1 456 cm = $\times$ = m

2 5.9 kg = $\times$ = g

3 4,258 cm = $\times$ = m 4 $\times$ 85 = 0.085

Third: Compare using (<, =, or >):

1 45 kg 4,500 g 2 5.02 L 5,020 mL

3 75 dm 750 m 4 25×0.01 0.25×100

Fourth: Answer the following:

Ali's cat weighs 7 kilograms and his dog weighs 17 kilograms. When Ali took them to the vet, he knew that his cat had gained 0.45 kilograms and his dog had gained 0.12 kilograms. What is the total weight of the two pets now?

.....

.....

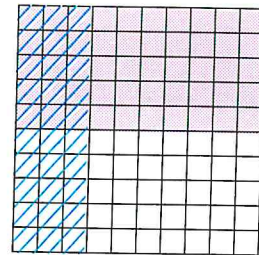


Assessment on Concept 1

First: Choose the correct answer:

- 1 The multiplication problem that expresses the corresponding model is

- a 0.12×0.35 b 1.2×3.5
c 0.3×0.5 d 30×50



- 2 The area model that expresses 2.5×0.35 is

- a $\begin{array}{r} 20 \quad 5 \\ 30 \quad \square \quad \square \\ 5 \quad \square \quad \square \end{array}$ b $\begin{array}{r} 2 \quad 0.5 \\ 0.3 \quad \square \quad \square \\ 0.05 \quad \square \quad \square \end{array}$ c $\begin{array}{r} 20 \quad 0.5 \\ 3 \quad \square \quad \square \\ 0.5 \quad \square \quad \square \end{array}$ d $\begin{array}{r} 2 \quad 0.5 \\ 0.3 \quad \square \quad \square \\ 0.5 \quad \square \quad \square \end{array}$

- 3 If $25 \times 16 = 400$, then $2.5 \times 1.6 =$

- a 0.04 b 0.4 c 4 d 40

- 4 0.48 liter = milliliter(s).

- a 0.048 b 4.8 c 48 d 480

- 5 3 Tenths $\times$ 8 Hundredths =

- a 0.024 b 0.24 c 24 d 240

Second: Complete the following:

- 1 $86 \times \dots = 0.086$ 2 If $24 \times 12 = 288$, then $2.4 \times 0.012 =$
3 $25.7 \times 9.8 \rightarrow$ Estimate $\times$ = (To the nearest whole number)
4 $4,258 \text{ g} = \dots \times \dots = \dots \text{ kg}$ 5 $0.7 \times 0.8 \times 0.5 =$

Third: Compare using (<, =, or >):

- 1 0.2×0.01 0.4×0.05 2 6.2×100 0.062×10
3 75 cm 750 m 4 1.2×3.5 0.12×350

Fourth: Answer the following:

- 1 The length of the route taken by the river bus is 58.7 km. How many kilometers will the river bus travel if it travels this route 9 times a day?
.....
2 Souad bought 20 meters of fabric. If the price of one meter is 65.5 pounds, what is the price of the whole fabric?

Unit 5 Multiplication and Division with Decimals

Concept 5.2 Dividing Decimals

Lessons 10&11

1 Divide:

1 $17 \div 10 =$

3 $102 \div 1,000 =$

5 $23 \div 0.01 =$

7 $0.6 \div 10 =$

9 $125 \div 1,000 =$

11 $0.27 \div 0.01 =$

13 $4.24 \div 10 =$

15 $4.17 \div 10 =$

17 $45.72 \div 0.01 =$

19 $0.07 \div 10 =$

21 $34 \div 1,000 =$

23 $63.75 \div 0.01 =$

25 $6.35 \times 0.1 =$

27 $31 \times 0.001 =$

2 $8 \div 100 =$

4 $45 \div 0.1 =$

6 $45 \div 0.001 =$

8 $0.12 \div 100 =$

10 $0.9 \div 0.1 =$

12 $0.42 \div 0.001 =$

14 $8.13 \div 100 =$

16 $61.75 \div 0.1 =$

18 $27.04 \div 0.001 =$

20 $0.96 \div 100 =$

22 $5.63 \div 0.1 =$

24 $4.2 \div 0.001 =$

26 $42.14 \times 0.01 =$

2 Complete the following:

1 $\div 10 = 0.8$

3 $\div 1,000 = 20$

5 $\div 0.01 = 400$

7 $\div 10 = 0.3$

2 $\div 100 = 6.32$

4 $\div 0.1 = 60$

6 $\div 0.001 = 300$

8 $\div 100 = 0.07$

9 $\div 1,000 = 0.009$

10 $\div 0.1 = 2.4$

11 $\div 0.01 = 2.5$

12 $\div 0.001 = 960$

13 $0.25 \div \dots = 25$

14 $0.58 \div \dots = 58$

15 $75 \div \dots = 75,000$

16 $23 \div \dots = 2.3$

17 $7.5 \div \dots = 0.075$

18 $37 \div \dots = 0.037$

19 $0.07 \div \dots = 70$

20 $45.2 \div \dots = 4,520$

21 $3.06 \div \dots = 30.6$

22 $0.03 \div \dots = 0.003$

23 $3.9 \div \dots = 3,900$

24 $50 \div \dots = 0.05$

3 Complete the following patterns:

1 $12.5 \div \dots = 12.5 \times \dots = 125$ 2 $600 \div \dots = 600 \times \dots = 0.6$

3 $225 \div \dots = 225 \times \dots = 22.5$ 4 $225 \div \dots = 225 \times \dots = 2.25$

5 $3.01 \div \dots = 3.01 \times \dots = 301$ 6 $1 \div \dots = 1 \times \dots = 0.1$

7 $6 \div \dots = 6 \times \dots = 0.06$ 8 $0.02 \div \dots = 0.02 \times \dots = 0.2$

9 $0.05 \div \dots = 0.05 \times \dots = 50$ 10 $0.005 \div \dots = 0.005 \times \dots = 5$

11 $12 \div \dots = 12 \times \dots = 0.012$ 12 $32 \div \dots = 32 \times \dots = 32,000$

4 Match:

1 18×0.1

2 18×0.01

3 18×0.001

4 18×10

5 18×100

a $18 \div 1,000$

b $18 \div 10$

c $18 \div 100$

d $18 \div 0.01$

e $18 \div 0.1$

5 Compare using (<, =, or >):

1 2.5×10 $25 \div 0.01$

2 0.1×100 $10 \div 100$

3 30×100 $3 \div 0.001$

4 $125 \div 10$ 12.5×10

5 15×0.01 $1.5 \div 10$

6 721×0.1 $721 \div 10$

7 $18.8 \div 10$ $188 \div 0.1$

8 225×0.1 $0.225 \div 0.1$

9 $20.02 \div 10$ $2.2 \div 10$

10 20×0.5 $1 \div 0.1$

6 Complete each conversion. Then, write a multiplication equation and a division equation with the same answer:

1 $65 \text{ kg} = \dots\dots\dots \text{ g}$

$65 \times \dots\dots\dots = \dots\dots\dots$

$65 \div \dots\dots\dots = \dots\dots\dots$

2 $2.5 \text{ m} = \dots\dots\dots \text{ cm}$

$2.5 \times \dots\dots\dots = \dots\dots\dots$

$2.5 \div \dots\dots\dots = \dots\dots\dots$

3 $5 \text{ liters} = \dots\dots\dots \text{ mL}$

$5 \times \dots\dots\dots = \dots\dots\dots$

$5 \div \dots\dots\dots = \dots\dots\dots$

4 $923 \text{ meters} = \dots\dots\dots \text{ km}$

$923 \times \dots\dots\dots = \dots\dots\dots$

$923 \div \dots\dots\dots = \dots\dots\dots$

5 $23 \text{ km} = \dots\dots\dots \text{ m}$

$23 \times \dots\dots\dots = \dots\dots\dots$

$23 \div \dots\dots\dots = \dots\dots\dots$

6 $25 \text{ mm} = \dots\dots\dots \text{ cm}$

$25 \times \dots\dots\dots = \dots\dots\dots$

$25 \div \dots\dots\dots = \dots\dots\dots$

7 $225 \text{ mL} = \dots\dots\dots \text{ liter}$

$225 \times \dots\dots\dots = \dots\dots\dots$

$225 \div \dots\dots\dots = \dots\dots\dots$

8 $200 \text{ gm} = \dots\dots\dots \text{ kg}$

$200 \times \dots\dots\dots = \dots\dots\dots$

$200 \div \dots\dots\dots = \dots\dots\dots$

9 $2.5 \text{ cm} = \dots\dots\dots \text{ mm}$

$2.5 \times \dots\dots\dots = \dots\dots\dots$

$2.5 \div \dots\dots\dots = \dots\dots\dots$

10 $42 \text{ dm} = \dots\dots\dots \text{ cm}$

$42 \times \dots\dots\dots = \dots\dots\dots$

$42 \div \dots\dots\dots = \dots\dots\dots$

Assessment

on Lessons 10&11

First: Complete the following:

- 1 $45 \times 0.01 = \dots\dots\dots$
- 2 $25 \div 1,000 = \dots\dots\dots$
- 3 $12.5 \times 100 = \dots\dots\dots$
- 4 $5.74 \div 0.1 = \dots\dots\dots$
- 5 $\dots\dots\dots \times 10 = 5.6$
- 6 $\dots\dots\dots \div 100 = 0.2$
- 7 $7.8 \times \dots\dots\dots = 0.78$
- 8 $85.9 \div \dots\dots\dots = 8,590$
- 9 $78.5 \times 0.1 = \dots\dots\dots \div 100$
- 10 $5.6 \times \dots\dots\dots = 56 \div 0.01$

Second: Complete each **conversion**. Then, write a **multiplication equation** and a **division equation** with the same answer:

- | | | |
|--|---|--|
| <p>1 $137 \text{ cm} = \dots\dots\dots \text{ m}$</p> <p>$137 \times \dots\dots\dots = \dots\dots\dots$</p> <p>$137 \div \dots\dots\dots = \dots\dots\dots$</p> | <p>2 $86 \text{ kg} = \dots\dots\dots \text{ g}$</p> <p>$86 \times \dots\dots\dots = \dots\dots\dots$</p> <p>$86 \div \dots\dots\dots = \dots\dots\dots$</p> | <p>3 $8,102 \text{ mL} = \dots\dots\dots \text{ L}$</p> <p>$8,102 \times \dots\dots\dots = \dots\dots\dots$</p> <p>$8,102 \div \dots\dots\dots = \dots\dots\dots$</p> |
|--|---|--|

Third: Compare using (**<**, **=**, or **>**):

- 1 $856 \div 100$ 856×0.01
- 2 5.64×100 $5.64 \div 0.001$
- 3 $200 \div 1,000$ 200×0.01
- 4 12×0.01 $12 \div 0.01$

Lessons 12&13

1 Use the **standard algorithm** to divide:

1

$$\begin{array}{r} 6 \overline{) 157.2} \end{array}$$

2

$$\begin{array}{r} 8 \overline{) 23.68} \end{array}$$

3

$$\begin{array}{r} 5 \overline{) 4.735} \end{array}$$

4

$$\begin{array}{r} 4 \overline{) 25.48} \end{array}$$

5

$$\begin{array}{r} 23 \overline{) 0.322} \end{array}$$

Draft

6

$$\begin{array}{r} 54 \overline{) 34.02} \end{array}$$

Draft

7

$$\begin{array}{r} 24 \overline{) 583.2} \end{array}$$

Draft

8

$$\begin{array}{r} 12 \overline{) 48.36} \end{array}$$

Draft

2 Use the **standard algorithm** to divide:

1

$$\begin{array}{r} \\ 8 \overline{) 2.8} \end{array}$$

2

$$\begin{array}{r} \\ 2 \overline{) 5.23} \end{array}$$

3

$$\begin{array}{r} \\ 4 \overline{) 3.22} \end{array}$$

4

$$\begin{array}{r} \\ 5 \overline{) 25.2} \end{array}$$

5

$$\begin{array}{r} \\ 4 \overline{) 25} \end{array}$$

6

$$\begin{array}{r} \\ 6 \overline{) 33} \end{array}$$

7

$$\begin{array}{r} \\ 25 \overline{) 28.5} \end{array}$$

Draft

8

$$\begin{array}{r} \\ 15 \overline{) 37.8} \end{array}$$

Draft

9

$$\begin{array}{r} \\ 16 \overline{) 24} \end{array}$$

Draft

3 Use the **standard algorithm** to divide:

1 $45.24 \div 0.4$

= $\div 4$

.....
.....
.....

2 $36.7 \div 0.05$

= $\div 5$

.....
.....
.....

3 $1.242 \div 0.006$

= $\div 6$

.....
.....
.....

4 $1.536 \div 0.6$

= $\div 6$

.....
.....
.....

5 $245 \div 0.7$

= $\div 7$

.....
.....
.....

6 $934 \div 0.8$

= $\div 8$

.....
.....
.....

7 $65.65 \div 0.13$

= $\div 13$

.....
.....
.....

8 $1.44 \div 1.2$

= $\div 12$

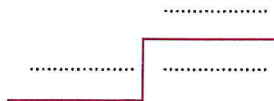
.....
.....
.....

9 $45.6 \div 0.15$

= $\div 15$

.....
.....
.....

10 $24.7 \div 2.5$
 $= \dots \div 25$



11 $14.297 \div 1.7$
 $= \dots \div 17$



12 $30.8 \div 2.8$
 $= \dots \div 28$



4 If $53 \times 31 = 1,643$, then:

1 $16.43 \div 31 = \dots$

2 $1.643 \div 0.53 = \dots$

3 $1,643 \div 3.1 = \dots$

4 $164.3 \div 0.53 = \dots$

5 $164.3 \div 3.1 = \dots$

6 $16.43 \div 5.3 = \dots$

7 $1.643 \div 0.31 = \dots$

8 $164.3 \div 5.3 = \dots$

9 $3.1 \times 5.3 = \dots$

10 $31 \times 0.53 = \dots$

11 $31 \times 5.3 = \dots$

12 $0.31 \times 5.3 = \dots$

13 $3.1 \times 53 = \dots$

14 $3.1 \times 0.53 = \dots$

15 $0.31 \times 53 = \dots$

5 Compare using (<, =, or >):

1 $2.5 \div 0.5$ $25 \div 5$

2 $0.45 \div 9$ $45 \div 0.9$

3 $30 \div 1.5$ $3 \div 15$

4 $3.6 \div 1.2$ $0.36 \div 0.12$

5 $48 \div 0.8$ $4.8 \div 8$

6 $6.3 \div 0.9$ $63 \div 0.9$

7 $1.44 \div 12$ $14.4 \div 0.12$

8 $225 \div 25$ $0.225 \div 0.25$

9 $2.7 \div 9$ $0.27 \div 9$

10 $5 \div 0.8$ $50 \div 8$

6 Answer the following:

- 1** Rashida saved **350** pounds to buy a toy car. She earned **12.5** pounds per day doing simple work. How many days did she need to work to save enough cash to buy the toy car?
.....
- 2** A father divided **99** pounds equally among his **five** children. How many pounds does each son take?
.....
- 3** Mona bought **9** meters of fabric, and paid **214.2** pounds. What is the price of one meter of fabric?
.....
- 4** If the profits of a shop are **728** pounds, and these profits are to be distributed equally among **5** persons, what is the share of one person?
.....
- 5** If a car consumes **210** liters of gasoline in **4** months, what is the average amount of gasoline that the car consumed in one month?
.....
- 6** Bilal bought **6** bags of fruit, with each bag weighing **4.25** kilograms. He wants to distribute the fruit equally between **two** friends. What is the weight of fruit each friend will receive?
.....
.....
- 7** Maha walked **3,000** meters every day for two weeks. The third week she walked **14** kilometers. How many kilometers did she walk during those **three** weeks?
.....
.....
.....
- 8** Sarah bought **20** kilograms of sugar. She used **4.5** kilograms to make drinks and then divided the remaining sugar equally into **5** bags. How many kilograms of sugar are in each bag?
.....
.....
.....

Assessment on Lessons 12&13

First: Use the **standard algorithm** to divide:

1 $17.4 \div 0.6 = \dots\dots\dots$



2 $9.31 \div 0.7 = \dots\dots\dots$



3 $8 \div 0.32 = \dots\dots\dots$



Second: If $434 \times 12 = 5,208$, then:

1 $520.8 \div 0.12 = \dots\dots\dots$

2 $52.08 \div 0.12 = \dots\dots\dots$

3 $5.208 \div 0.12 = \dots\dots\dots$

4 $5,208 \div 0.12 = \dots\dots\dots$

5 $52.08 \div 12 = \dots\dots\dots$

6 $520.8 \div 43.4 = \dots\dots\dots$

7 $52.08 \div 43.4 = \dots\dots\dots$

8 $5.208 \div 0.434 = \dots\dots\dots$

9 $5,208 \div 43.4 = \dots\dots\dots$

10 $5.208 \div 434 = \dots\dots\dots$

Third: Match:

1 $12.25 \div 2.5$

2 $122.5 \div 2.5$

3 $1.225 \div 2.5$

4 $1,225 \div 2.5$

5 $12,250 \div 2.5$

a $12.25 \div 0.25$

b $1.225 \div 0.25$

c $1,225 \div 0.25$

d $12.25 \div 25$

e $12,250 \div 25$



Assessment on Concept 2

First: Choose the correct answer:

- 1 liter = 45 milliliters
a 0.045 b 45,000 c 0.45 d 4.500
- 2 3 Tenths $\div$ 5 Hundredths =
a 15 b 6 c 0.015 d 0.06
- 3 $24.7 \div$ = 0.247
a 0.01 b 0.1 c 10 d 100
- 4 $9.6 \div 0.1 =$
a 9.6×0.1 b 96×0.1 c 96×10 d 9.6×10
- 5 $0.001 \times$ = $0.25 \div 10$
a 0.25 b 2.5 c 25 d 250

Second: Complete the following:

- 1 $75.03 \div$ = 750.3 2 $18,000 \div 100 =$
- 3 $18 \times 0.01 = 18 \div$ 4 $45.36 \text{ cm} =$ mm
- 5 If $2.5 \times 1.2 = 3$, then $3 \div 25 =$

Third: Match:

- 1 25×0.1
- 2 2.5×0.1
- 3 2.5×0.01
- 4 2.5×10

- a $2.5 \div 10$
- b $2.5 \div 0.1$
- c $0.25 \div 0.1$
- d $0.25 \div 10$

Fourth: Answer the following:

A pasta factory produces **832.5** kilograms of pasta each day. The pasta is packed into bags, each weighing **450** grams. How many bags are needed to pack all the pasta produced in one day?

.....
.....

Unit ⁶ Numerical Expressions and Patterns

Concept 6.1

Evaluating Numerical Expressions and Patterns

Lessons 1-4

- 1 Use the **order of operations** to evaluate each expression, one step at a time:

1 $1.5 + 2.5 + 0.7$

=
=
=

2 $9.8 - 2.6 - 1.3$

=
=
=

3 $8.01 + 7 - 10.02$

=
=
=

4 $24 - 5.5 + 4.3$

=
=
=

5 $0.2 \times 2 \times 4.2$

=
=
=

6 $4.5 \div 3 \div 0.5$

=
=
=

7 $2.5 \times 8 \div 0.5$

=
=
=

8 $4.8 \div 6 \times 0.5$

=
=
=

9 $8 \times 2.5 + 10.2$

=
=
=

10 $4.2 \times 10 - 8.2$

=
=
=

11 $7.5 + 4 \times 2.4$

=
=
=

12 $1.5 - 0.3 \times 0.3$

=
=
=

13 $4 \div 0.8 + 2.5$

=
=
=

14 $0.36 \div 0.9 - 0.4$

=
=
=

15 $4.2 + 1.6 \div 2$

=
=
=

2 Use the **order of operations** to evaluate each expression, one step at a time:

1 $8.5 + 5.3 + 7.7 + 3.5$

=
=
=

2 $25 - 8.5 - 3.2 - 6$

=
=
=

3 $2.5 \times 10 \times 0.3 \times 0.1$

=
=
=

4 $0.36 \div 0.01 \div 0.6 \div 0.3$

=
=
=

5 $72 \times 0.1 + 0.5 \times 10$

=
=
=

6 $4.5 \times 100 - 50 \times 9$

=
=
=

7 $12 \div 0.4 + 1.5 \div 3$

=
=
=

8 $3.6 \div 0.9 - 0.24 \div 8$

=
=
=

9 $0.6 \times 8 + 7.5 \times 10 + 0.7 \times 3$

=
=
=

10 $7 \times 10 - 0.7 \times 50 - 0.3 \times 10$

=
=
=

11 $2.4 \div 3 + 3 \div 6 + 24 \div 0.8$

=
=
=

12 $4.8 \div 2 + 3.5 \div 7 - 6.4 \div 8$

=
=
=

13 $52 + 4.5 \times 10 - 7$

=
=
=

14 $45 - 14 + 2.5 \times 8$

=
=
=

15 $15 + 4 \times 0.7 - 0.2$

=
=
=

16 $8 + 0.35 \div 0.5 - 0.3 \times 4$

=
=
=

3 Use the **order of operations** to evaluate each expression, one step at a time:

1 $4.2 \times (10 - 9.2)$

=
=
=
=

2 $(7.5 - 4) \times 0.1$

=
=
=
=

3 $(4.3 + 0.7) \times 0.3$

=
=
=
=

4 $4 \times (5.8 + 4.2)$

=
=
=
=

5 $0.36 \div (0.9 - 0.3)$

=
=
=
=

6 $(4.2 + 1.6) \div 2$

=
=
=
=

7 $2.4 \div (7.8 - 7.2)$

=
=
=
=

8 $16 \div (0.9 + 0.7)$

=
=
=
=

9 $(5.2 - 0.4) \div 6$

=
=
=
=

4 Use the **order of operations** to evaluate each expression:

1 $[0.85 \times (2.7 + 7.3)] - 3.5$

=
=
=
=

2 $25 + [0.5 \times (4.2 - 3) + 1]$

=
=
=
=

3 $[(20.5 - 10) \times 0.3] \div 0.1$

=
=
=
=

4 $[(0.36 + 1.2) \div (0.6 + 0.2)] \times 5$

=
=
=
=

5 $12 \times [(0.1 + 0.5) \times 10] \div 8$

=
=
=
=

6 $54 \div [75 \times 0.1 - (15 \div 10)]$

=
=
=
=

5 Match:

- 1 $4.8 \div 0.2 \times 0.4 + 1.2$
 2 $4.8 \div 0.2 \times (0.4 + 1.2)$
 3 $4.8 \div (0.2 \times 0.4) + 1.2$
 4 $4.8 \div [(0.2 \times 0.4) + 1.2]$

- a 61.2
 b 3.75
 c 10.8
 d 38.4

6 For each problem, write an expression that matches the clues. Then, evaluate the expression:

- 1 Add 5.9 and 12.6. Then, multiply the result by 10.

.....

- 2 Add 5.25 and 3.1. Then, divide the result by 0.1.

.....

- 3 Multiply 0.542 by 100 and add 2.5.

.....

- 4 Divide 456 by 10 and add 4.4.

.....

- 5 Divide 93 by 0.3. Then, add 114.7 and divide the result by 5.

.....

- 6 Add 30.5, 5.5 and 4. Then, subtract the result from 125.5, and finally multiply by 100.

.....

- 7 Multiply 7.6 by 100. Next, subtract 34.3. Then, add 12.4. Finally, divide the result by 0.1.

.....

- 8 Divide 4.5 by 0.1. Then, add 5.5 multiplied by 10.

.....

7 Answer the following:

- 1 Adel bought **16.5** kg of apples. He gave **1.5** kg of them to his family and wants to give the rest to **5** of his friends. How many kilograms would each friend get if he divided the apples equally among them?

.....

.....

- 2 Maha walked **2.5** kilometers every day for two weeks. The third week, she walked **54.2** km. How many kilometers did she walk during those **three** weeks?

.....

.....

- 3 Bilal bought **6** bags of balloons. Each bag contains **12** balloons. He wants to give balloons to his friends at his birthday party. If he has **8** friends at the party, how many balloons will each friend get?

.....

.....

8 Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:

- 1 2, 5, 8, 11, 14, 17,

Rule:

- 2 3, 8, 13, 18, 23, 28,

Rule:

- 3 58, 54, 50, 46, 42, 38,

Rule:

- 4 90, 80, 70, 60, 50,

Rule:

- 5 1, 2, 4, 8, 16, 32,

Rule:

- 6 1, 3, 9, 27, 81,

Rule:

- 7 256, 128, 64, 32,

Rule:

9 Write the **rule** for each pattern with a **variable**. Then, complete the pattern by finding the **missing values**:

1	Input	Output	2	Input	Output	3	Input	Output	4	Input	Output
	15	.....		18	10		5	.....		1	6
	17	.....		28	.....		7	10		2	7
	21	14		.....	30		9	12		3	.....
	25	18		.....	40		.....	14		4	.....
	.....	20		58	50		.....	16		5	.....
	Rule:			Rule:			Rule:			Rule:	

5	Input	Output	6	Input	Output	7	Input	Output	8	Input	Output
	39	.....		3	9		6	.....		2	6
	33	.....		6	.....		10	5		4	12
	27	9		.....	27		14	7		6	.....
	21	7		.....	36		.....	9		8	.....
	.....	5		15	45		.....	11		10	.....
	Rule:			Rule:			Rule:			Rule:	

10 Use the **rule** shown to complete each table:

1	Input	Output	2	Input	Output	3	Input	Output	4	Input	Output
	15	.....		3	.....		.....	12		1	.....
	.....	5		.....	27		.....	16		2	.....
	35	.....		15	.....		.....	20		3	.....
	.....	9		.....	72		.....	24		4	.....
	55	.....		27	.....		.....	28		5	.....
	Rule: $n \div 5$			Rule: $n \times 3$			Rule: $n - 4$			Rule: $n + 7$	



Assessment on Concept 1

First: Choose the correct answer:

1 $4.5 + 35 \times 0.1 = \dots\dots\dots$

- a** 8 **b** 3.95 **c** 0.8 **d** 39.5

2 $1.2 \times (0.3 + 0.2) = \dots\dots\dots$

- a** 0.56 **b** 0.6 **c** 6 **d** 5.6

3 The mathematical expression that expresses "Add 3.5 and 3.7. Then, multiply by 0.8." is $\dots\dots\dots$

- a** $3.5 + 3.7 \times 0.8$ **b** $(3.5 + 3.7) \times 0.8$ **c** $3.5 + (3.7 \times 0.8)$ **d** $3.5 \times 3.7 + 0.8$

4 The mathematical expression " $4.5 - 0.3 \div 1.2$ " is expressed as: $\dots\dots\dots$

- a** subtract 0.3 from 4.5, then divide by 1.2
b divide 0.3 by 1.2, then subtract 4.5
c subtract 4.5 from 0.3, then divide by 1.2
d divide 0.3 by 1.2, then subtract the result from 4.5

5 $5.6 + 0.5 - 0.4 \times 1.5 = \dots\dots\dots$

- a** $6.1 - 0.6$ **b** $5.6 + 0.1 \times 1.5$ **c** $5.6 + 0.5 - 0.6$ **d** $6.1 - 0.4 \times 1.5$

6 The rule of the following pattern is $\dots\dots\dots$

Input	Output
3	12
4	16
5	20

- a** $n + 9$ **b** $n - 9$
c $n \times 4$ **d** $n \div 9$

7 The rule of the following pattern is $\dots\dots\dots$

Input	Output
20	8
18	6
16	4

- a** $n - 12$ **b** $n \div 3$
c $n \times 4$ **d** $n + 12$

Second: Use the **order of operations** to evaluate each expression:

1 $9.2 + 2.5 \times 4 \div 5$

=
 =
 =
 =

2 $5 \times [4.8 \div (8.4 - 7.2)]$

=
 =
 =
 =

3 $(6.7 - 2.3) \times (8.5 + 2.5)$

=
 =
 =
 =

Third: Answer the following:

Hoda is filling identical vases with water for flower arrangements at the florist. She starts with **15.75** liters and pours an equal amount into **16** vases. When she is finished, Hoda still has **3.75** L of water left. How much water is in each vase?

Give your answer in liters. Write an expression that matches the scenario, then evaluate the expression.



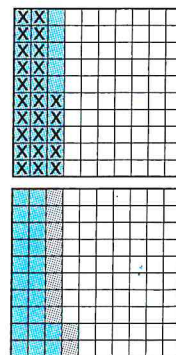
Assessments on Units



Assessment on Unit 1

First: Choose the correct answer:

- 1 45,000.04 (in word form):
 (a) Forty-five and four hundredths (b) Forty-five and four thousandths
 (c) Forty-five thousand and four hundredths
 (d) Forty-five thousand and four thousandths
- 2 Six milliard, twenty million, 4 hundred thousand, eighty is
 (a) 6,020,400,080 (b) 6,200,400,800 (c) 6,002,004,800 (d) 6,248
- 3 The value of is increased by multiplying by a factor of 10 to 75.2.
 (a) 752 (b) 7.52 (c) 75.2 (d) 0.752
- 4 $50 + 7 + 0.02 + 0.004 =$
 (a) 57.024 (b) 57.24 (c) 57.6 (d) 57.204
- 5 $47.98 \approx$ (To the nearest Tenth)
 (a) 47.9 (b) 47.0 (c) 48.0 (d) 48.9
- 6 $3.07 =$
 (a) $30 + 7$ (b) $30 + 0.7$ (c) $3 + 0.07$ (d) $30 + 0.07$
- 7 $85.23 \div 10 =$
 (a) 8,523 (b) 852.5 (c) 85.25 (d) 8.523
- 8 $23 + 0.9$ $230 + 0.09$
 (a) $>$ (b) $<$ (c) $=$ (d) $\leq$
- 9 The expression that expresses the corresponding model is
 (a) $0.3 - 0.025$ (b) $0.3 + 0.25$
 (c) $0.3 - 0.25$ (d) $0.03 + 0.25$
- 10 The expression that expresses the corresponding model is
 (a) $2.2 + 0.32$ (b) $0.22 - 0.32$
 (c) $0.22 + 0.1$ (d) $0.22 - 0.01$



Units Revision

Second: Complete the following:

- 1 Sixty-five million and five thousandths (in standard form):
- 2 In 8,567.491, the place value of 9 is the and its value is
- 3 The value of 56.47 is decreased by dividing by a factor of 10 to
- 4 $43.78 \approx$ (To the nearest Tenth)
- 5 $400 + 20 + 0.1 + 0.008 =$ 6 $45.95 \times 10 =$
- 7 6 Hundredths + 6 Thousandths = Thousandths
- 8 The estimated difference of $(7.12 - 2.9)$ using rounding to the nearest whole number strategy is
- 9 + 0.62 = 1 10 - 0.12 = 0.88

Third: Match:

- 1 Three hundred and three hundredths
- 2 $300 + 0.3$
- 3 3.003×10
- 4 $30.03 \div 10$
- 5 $3.93 - 0.9$

- a 300.3
- b 300.03
- c 3.03
- d 30.03
- e 3.003

Fourth: Compare using ($<$, $=$, or $>$):

- 1 35.001 35.100 2 75.012 75.102
- 3 $100 + 2 + 0.05$ 100.25 4 45.6×10 $45 \div 10$
- 5 80.002 Eight hundred and two hundredths

Fifth: Answer the following:

- 1 A farmer can raise 25,327 liters of water on one day using the shadouf, and 47,128 liters on another day. How many liters of water can the farmer raise in two days?
.....
- 2 Walaa is traveling from Cairo to Matrouh. If the distance between Cairo and Matrouh is 446.3 kilometers, and Walaa traveled 267.53 kilometers, then what is the distance that Walaa has to travel to reach Matrouh?
.....
- 3 Omar has 67.40 pounds, and his sister Fairouz has 70.45 pounds. They want to buy a game for 342.5 pounds. How much do they need to buy this game?
.....



Assessment on Unit 2

First: Choose the correct answer:

- 1 $7.5 + 5.25 = m - 2.35$ is
 (a) a variable (b) a mathematical expression
 (c) an equation (d) other
- 2 In the equation that represents, "Yassin had 35.5 pounds, and he bought a toy for 23.25 pounds. How much money is left with him?" is
 (a) $35.5 + x = 23.25$ (b) $x = 35.5 + 23.25$
 (c) $23.25 + x = 35.5$ (d) $x - 35.5 = 23.25$
- 3 If $12.4 + x = 26.3 - 10.04$, then $x =$
 (a) $12.4 + 26.3 + 10.04$ (b) $(26.3 - 10.04) - 12.4$
 (c) $13.26 + 12.4$ (d) $(26.3 - 10.04) + 12.4$
- 4 The equation that expresses the corresponding **bar model** is
 (a) $y = 2.63 + 1.2$ (b) $y = 2.63 - 1.2$
 (c) $y - 1.2 = 2.63$ (d) $y + 2.63 = 3.83$
- | | |
|---|------|
| | 2.63 |
| y | 1.2 |
- 5 "Ahmed has 5 pens and 3 books" is
 (a) a variable (b) a mathematical expression
 (c) an equation (d) other
- 6 If the factors of a number are **1, 2, 4, and 8**, then its prime factors are
 (a) $2 \times 2 \times 2$ (b) 2×4 (c) 1×8 (d) $1 \times 2 \times 4$
- 7 The **LCM** of any **two** prime numbers is
 (a) the largest number (b) the smallest number
 (c) 0 (d) their product
- 8 **18** is a multiple of
 (a) 8 (b) 36 (c) 9 (d) 12
- 9 The LCM of **6** and **4** is
 (a) 12 (b) 24 (c) 36 (d) 48
- 10 **30** is a common multiple of the **two** numbers
 (a) 10 and 8 (b) 6 and 12 (c) 30 and 9 (d) 10 and 15

Units Revision

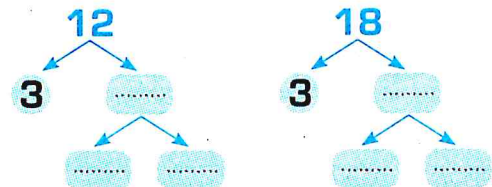
Second: Complete the following:

- 1 If $8.235 + p = 10.224$, then $p =$
- 2 All prime numbers are numbers, except, which is an even number.
- 3 If $x = 3.51$, then $x - 1.28 =$
- 4 If $t \times 8 = 56$, then $t =$
- 5 The equation that represents [4.02 plus "a" equals 12] is
- 6 The factors of 25 are
- 7 The prime factors of 25 are
- 8 A number whose prime factors are 2, 3, and 5 is
- 9 is a common multiple of all numbers.
- 10 Use the equation " $s - 0.12 = 7.25$ " to complete the corresponding bar model.

.....	
.....	

Third: Complete the **factor trees**, then find the **GCF** and **LCM** of 12 and 18.

12 and 18	
12 =	.....
18 =	.....
GCF =	 =
LCM =	 =



Fourth: Answer the following:

Mary has **25** blue roses and **15** red roses that she wants to distribute in bouquets so that each bouquet contains the same number of roses of each color.

What is the largest number of bouquets that Mary needs for each type of rose?

.....

.....

.....

Accumulative Assessments

on Units 1&2

Assessment 1

First: Complete the following:

- 1 The place value of the digit 5 in 6,230.257 is the
- 2 The number 15.892 rounded to the nearest **Hundredth** is
- 3 The prime factors of **18** are
- 4 is a common multiple of all numbers.

Second: Choose the correct answer:

- 1 The value of increases when multiplying by 10 to 4.25.
 a 425 b 42.5 c 4.25 d 0.425
- 2 $4.06 =$
 a $4 + 6$ b $40 + 0.6$ c $4 + 0.06$ d $10 + 0.06$
- 3 The smallest prime number is
 a 0 b 1 c 2 d 3
- 4 The **GCF** of 8 and 12 is
 a 8 b 12 c 24 d 4

Third: Compare using ($<$, $=$, or $>$):

- 1 45.6×10 $4.56 \div 10$ 2 $7.25 - 3.8$ $3.8 + 0.35$
- 3 $78,258.023$ $78,258.203$ 4 $20 + 7 + 0.08$ $27 + 0.8$

Fourth: Answer the following:

- 1 Fares traveled from Cairo to Alexandria via the agricultural road and stopped for a rest in the cities of Tanta and Damanhur. The distance between Cairo and Alexandria is **225** km. The distance between Cairo and Tanta is **100.3**, and the distance between Tanta and Damanhur is **64.7** km. Calculate the distance between Alexandria and Damanhur.

- 2 Find the **GCF** and **LCM** of **16** and **24**. Use **prime factorization**.

16 =

24 =

GCF = =

LCM = =

Assessment 2

First: Complete the following:

- 1 All prime numbers are odd numbers, except, which is an number.
- 2 The prime numbers between 20 and 30 are and
- 3 $300 + 50 + 0.2 + 0.008 =$
- 4 Five milliard, thirty thousand, and ninety-nine thousandths (**in standard form**):
.....

Second: Choose the correct answer:

- 1 The equation that represents [3.5 plus "m" equals 8.7] is
 a $m - 3.5 = 8.7$ b $m - 8.7 = 3.5$ c $3.5 + m = 8.7$ d $3.5 - m = 8.7$
- 2 The value of 78.25 is decreased when dividing by 10 to
 a 7,825 b 782.5 c 7.825 d 0.7825
- 3 $502 + 0.2 + 0.005$ $50 + 2 + 0.25$
 a $>$ b $=$ c $<$ d $\leq$

Third: Put (✓) or (x):

- 1 8 is a common multiple of 16 and 24. ()
- 2 "4.5 + 2.3 + y = 15" is called an equation. ()
- 3 $300 + 50 + 0.2 + 0.003 = 350.203$ ()

Fourth Answer the following:

A class has **16** girls and **12** boys. The teacher wants to divide them into equal groups with the same number of boys and girls. What is the largest number of groups that can be formed? How many boys are in each group? And how many girls are in each group?

.....



Assessment on Unit 3

First: Choose the correct answer:

1 $3 \times 1,000$ 50×60

a $>$

b $=$

c $<$

d $\leq$

2 $5,062 \times 7$ $5,602 \times 7$

a $>$

b $=$

c $<$

d $\leq$

3 The model that represents $2,075 \times 26$ is

	2,000	70	5
20			
6			

a

	2,000	700	5
20			
6			

b

	2,000	700	50
20			
6			

c

	2,000	70	5
2			
60			

d

4 The model that represents $3,502 \times 31$ is

9,000	1,500	6
3,000	500	2

a

30,000	5,000	20
9,000	1,500	6

b

90,000	15,000	60
3,000	500	2

c

9,000	1,500	60
300	50	2

d

5 $(2 \times 50) + (2 \times 7) + (60 \times 50) + (60 \times 7) =$

a 26×57

b 62×57

c 62×75

d 26×75

6 $45 \times 123 =$

a $(5 \times 100) + (5 \times 20) + (5 \times 3) + (40 \times 100) + (40 \times 20) + (40 \times 3)$

b $(5 \times 100) + (5 \times 20) + (5 \times 3) + (4 \times 100) + (4 \times 20) + (4 \times 3)$

c $(50 \times 100) + (50 \times 20) + (50 \times 3) + (40 \times 100) + (40 \times 20) + (40 \times 3)$

d $(50 \times 100) + (50 \times 20) + (50 \times 3) + (4 \times 100) + (4 \times 20) + (4 \times 3)$

7 The model that represents $(90 \times 30) + (90 \times 4) + (3 \times 30) + (3 \times 4)$ is

	4	3
30		
90		

a

	90	3
30		
4		

b

	90	4
30		
3		

c

	90	30
4		
3		

d

8 The problem that represents the opposite area model is

a $4,275 \times 46$

b 495×46

c $4,095 \times 46$

d $4,905 \times 46$

	4,000	90	5
40			
6			

Units Revision

9 $\times 7 = 7,000$

a 10

b 100

c 1,000

d 10,000

10 $12 \times \dots = 12 \times (200 + 30 + 30)$

a 12×260

b $12 \times 2,330$

c 12×800

d $12 \times 2,033$

Second: Complete the following:

1 $9 \times 100,000 = \dots$

2 $5 \times \dots = 50,000$

3 $10,000 \times \dots = 70,000$

4 $42 \times \dots = 60 \times 70$

5 $7 \times 123 = (7 \times 100) + (7 \times \dots) + (7 \times \dots)$

6 $8 \times \dots = (8 \times 3,000) + (8 \times 500) + (8 \times 4)$

7 $(5 \times 30) + (5 \times 8) + (60 \times 30) + (60 \times 8) = \dots \times \dots$

8 $45 \times 22 = \dots$

9 $5,020 \times 12 \dots$

10 $232 \times 13 = \dots$

Third: Match each **model** to the **problem** representing it:

	2,000	50	4
30			
7			

1

	4,000	500	2
70			
3			

2

	500	20	4
70			
3			

3

	5,000	400	20
30			
7			

4

a

$4,502 \times 73$

b

$5,420 \times 37$

c

$2,054 \times 37$

d

524×73

Fourth: Solve each problem using the mentioned strategy:

1 $7,086 \times 54$

(Distributive Property)

2 $6,021 \times 24$

(Partial Products)

3 $6,008 \times 67$

(Area Model)

Fifth: Answer the following:

Mona is making tahini to use in dishes at her restaurant. Her recipe uses **140** grams of sesame seeds to make **120** milliliters of tahini. She makes the recipe **20** times each week. How many grams of sesame seeds does she use each week?

How many milliliters of tahini does she make each week?

How many liters of tahini does she make in **35** weeks?

Accumulative Assessments

on Units 1-3

Assessment 1

First: Complete the following:

- 1 4 Tenths – 25 Thousandths =
- 2 If $2.5 + 12 = b + 7.5$, then $b =$
- 3 $45 \times 12 = (40 \times \dots) + (40 \times \dots) + (\dots \times 10) + (\dots \times 2)$

Second: Choose the correct answer:

- 1 The multiplication problem that represents the opposite model is

	8	8
20		
1		

- a 21×88 b 30×88 c 21×16 d 30×16
- 2 ≈ 12.08 (To the nearest **two decimal places**)
 a 12.084 b 12.086 c 12.073 d 12.069
- 3 6 is a factor of
 a 2 b 3 c 12 d 8

Third: Find the result using the mentioned strategy:

1 706×24

(Standard Algorithm)

.....

2 621×16

(Partial Products)

.....

3 $6,008 \times 32$

(Area Model)

.....

Fourth: Put (✓) or (✗):

- 1 The LCM of 12 and 18 is 6. ()
- 2 8,000.08 in **word form** is eight thousand and eight hundredths. ()
- 3 $54,020 \times 5 > 50,402 \times 5$ ()

Fifth: Answer the following:

A school has 25 classes; each class has 19 girls and 17 boys.

How many students are there in the school?

Assessment 2

First: Choose the correct answer:

- 1 The least common multiple of any two prime numbers is
 a the larger number b the smaller number
 c the product of the two numbers d the sum of the two numbers

- 2 The model that represents 24×403 is

a

	400	3
2		
4		

b

	400	3
20		
4		

c

	400	3
2		
40		

d

	40	3
20		
4		

- 3 The value of the digit 6 in 30.067 is
 a 60 b 6 c 0.6 d 0.06

Second: Complete the following:

- 1 $23 \times 102 =$
- 2 The estimate of the sum of $(56.3 + 4.9)$ using rounding to the nearest whole number strategy is
- 3 If $b = 3.25$, then $8.02 - b =$

Third: Compare using ($<$, $=$, or $>$):

- 1 56.02×3.2 $179 + 0.264$
- 2 $45.89 \div 10$ $40 + 5 + 0.8 + 0.09$
- 3 The common factor of all numbers The common multiple of all numbers

Fourth: Match:

- 1 $18.1 - 4.9$
 2 $13.2 \div 10$
 3 11×12

- a 22×6
 b $7.8 + 5.4$
 c 0.132×10

Fifth: Answer the following:

- 1 Wael bought 23 pens. If the price of one pen is 235 piasters, how much did Wael pay?

- 2 Find the GCF and LCM of "3 x 6" and "4 x 3". Use prime factorization.



Assessment on Unit 4

First: Choose the correct answer:

- 1 In $428 \div 2 = 214$, the dividend is

a 214 b 2 c 428 d 824

- 2 Which of the following can be used to check the result of the opposite model?

a $3,113 \times 25$ b 323×25
c $3,023 \times 25$ d 332×25

	300	10	10	3
	8,075	575	325	75
25	- 7,500	- 250	- 250	- 75
	575	325	75	0

- 3 Wafaa wanted to distribute **250** candy bars equally among **12** of her colleagues, so

a each person took 20 pieces and 10 pieces remained
b each person took 10 pieces, and 20 pieces remained
c each person took 21 pieces, and 2 pieces remained
d each person took 21 pieces, and there is nothing left

- 4 $30,000 \div 50 =$

a 6 b 60 c 600 d 6,000

- 5 $\div 600 = 40$

a 24,000 b 2,400 c 240 d 24

- 6 $40,000 \div$ $= 800$

a 5 b 50 c 500 d 5,000

- 7 The quotient in the following division model is

a 19,044
b 92
c 117
d 207

$$\begin{array}{r} 207 \\ 92 \overline{) 19,044} \\ \underline{- 184} \\ 644 \\ \underline{- 644} \\ 000 \end{array}$$

- 8 The divisor in the following division model is

a 6,700
b 65
c 103
d 5

$$\begin{array}{r} 65 \overline{) } \\ \underline{} \\ 200 \\ \underline{- 195} \\ 5 \end{array}$$

Units Revision

9 The remainder in the following division model is

a 6,090

b 42

c 145

d 0

	100	40	5
42	6,090	1,890	210
	- 4,200	- 1,680	- 210
	1,890	210	0

10 The dividend in the following division model is

a 8,935

b 24

c 372

d 7

	372
24	8,935
-	72
	1,735
-	1,68
	55
-	48
	7

Second: Complete the following:

1 $80 \times 300 =$

2 $40,000 \div 500 =$

3 $45,060 \div 15 =$

4 $60,144 \div 12 =$

5 $72,368 \div 9 = 8,040$ and the remainder is

Third: Complete the following models:

1

45	14,130
-	
	
-	45
	
-	
	

2

	5,850	850	100
25	- 5,000	- 750	- 100
	850	100	0

3

	0202
43	8,686
-	
	86
-	
	0

Fourth: Compare using (<, =, or >):

1 $45,045 \div 5$ $36,036 \div 4$ 2 $45,000 \div 50$ $36,000 \div 400$

3 $1,375 \div 11$ $1,250 \div 10$ 4 $36,048 \div 12$ $3,648 \div 12$

5 $65,125 \div 25$ $65,150 \div 25$

Fifth: Answer the following:

1 Adel wants to distribute **4,530** pounds among **15** people equally. What is the share of each person?

.....

2 A school has **570** boys and **600** girls, and they are divided into **26** classes equally. How many students are there in each class?

.....

Accumulative Assessments

on Units 1-4

Assessment 1

First: Complete the following:

- 1 $45.036 = 45 + \dots + \dots$ 2 The factors of **15** are $\dots$.
- 3 If $12 \times 213 = 2,556$, then the remainder of $2,560 \div 12$ is $\dots$.
- 4 $38 \times \dots = (30 \times 70) + (30 \times 2) + (\dots \times 70) + (\dots \times 2)$

Second: Choose the correct answer:

- 1 The numbers 2, 7, 11, and 13 are $\dots$ numbers.
 a odd b even c prime d composite
- 2 The value of 9 in the **Hundredths** place is $\dots$.
 a 900 b 0.9 c 0.09 d 0.009
- 3 $3,600 \div 20$ 60×30
 a < b = c > d $\leq$
- 4 The divisor in the corresponding division problem is $\dots$.
 a 4 b 2,500
 c 208 d 12

	200	8
	2,500	100
12	- 2,400	- 96
	100	4

Third: Find the result using the mentioned strategy:

- 1 $3,844 \div 31 = \dots$ (**Division Algorithm**) 2 $1,545 \div 45 = \dots$ (**Area Model**)

Fourth: Answer the following:

- 1 Hana bought **24** kg of flour for **288** pounds. What is the price of one kilogram?
 $\dots$
- 2 Emad is **1.45** meters tall, and Hajar is **1.39** meters tall. What is the difference between their heights?
 $\dots$
- 3 Find the **GCF** and **LCM** of **6** and **9**. Use **prime factorization**.
 $\dots$

Assessment 2

First: Find the result using your preferred strategy:

1 $4,836 \div 6 =$

2 $4,254 \times 31 =$

3 $45.027 - 29.38 =$

4 $615.3 + 2.847 =$

Second: Choose the correct answer:

1 If the value of the digit 7 is 0.7, then its place value is the

a Ones

b Tens

c Tenths

d Hundredths

2 When 45.82 is multiplied by 10, the value of the digit 8 changes to

a 80

b 8

c 0.8

d 0.08

3 is the common multiple of all numbers.

a 0

b 1

c 2

d 3

4 The problem that represents the following model is

a $16,884 \div 42$

b $16,884 \div 420$

c $42 \div 420$

d $420 \div 42$

$$\begin{array}{r} 402 \\ 42 \overline{) 16,884} \\ \underline{- 168} \\ 084 \\ \underline{- 84} \\ 00 \end{array}$$

Third: Compare using (<, =, or >):

1 95.201 95.021

2 13×125 13×521

3 28.8×10 12×24

4 3 Hundredths 300 Thousandths

Fourth: Answer the following:

1 Hatem goes to the club for soccer training every 8 days, while his sister Walaa goes to the club for volleyball training every 6 days.
How many days will it be until they go to the club together?

.....

.....

2 Arrange the following numbers in an **ascending** order:

12.05 , 1.205 , 120.5 , 1,205 , 10.25

.....



Assessment on Unit 5

First: Choose the correct answer:

1 kg = 36 g

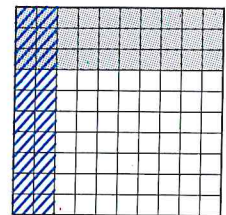
- a 0.036 b 36,000 c 0.36 d 3.600

2 $0.01 \times \dots = 0.045$

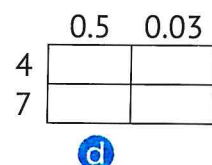
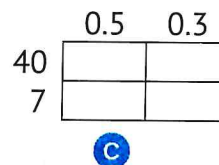
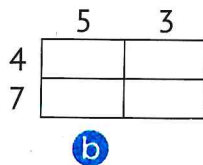
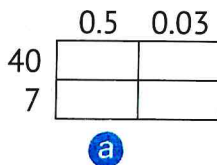
- a 0.45 b 4.5 c 45 d 450

3 The multiplication problem that expresses the following model is

- a 3×0.2
b 0.3×2
c 0.3×0.2
d 3×2



4 The area model that represents 47×0.53 is



5 5 Tenths $\times$ 3 Hundredths =

- a 15 b 1.5 c 0.15 d 0.015

6 $25.3 \div \dots = 0.253$

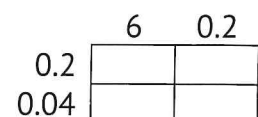
- a 0.01 b 0.1 c 10 d 100

7 $\div 0.1 = 36.24$

- a 362.4 b 3,624 c 3.624 d 36,240

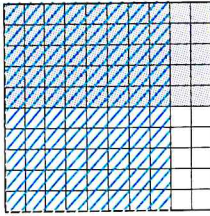
8 The multiplication equation that represents the following model is

- a 0.24×0.62
b 0.24×6.2
c 2.4×6.2
d 2.4×0.62

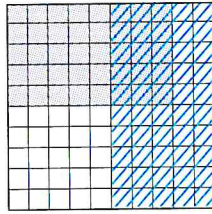


Units Revision

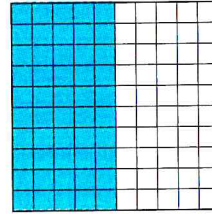
- 9 The model that represents the multiplication problem (0.5×0.8) is



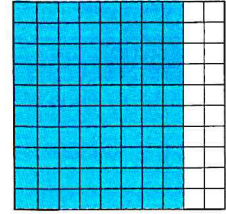
a



b



c



d

10 $4.5 \div 0.1 =$

a 4.5×0.1

b 45×0.1

c 45×10

d 4.5×10

Second: Complete the following:

1 If $8 \times 15 = 120$, then $8 \times 1.5 =$

2 $11.5 \times 28.2 \rightarrow$ Estimate: $\times$ = (To the nearest whole number)

3 $0.29 \text{ kg} =$ $\times$ = g

4 If the length of a rectangle is **1.2** cm, and its width is **0.8** cm, then its area is cm^2 .

5 $\times 100 = 932$

6 $29.08 \div$ = 290.8

7 $20.000 \div 0.001 =$

8 $18 \times 0.01 = 18 \div$

9 4 Tenths $\times$ 5 Hundredths =

10 4 Tenths $\div$ 5 Hundredths =

Third: Compare using (**<**, **=**, or **>**):

1 4.5 km 4,500 m

2 $35.5 \div 0.1$ 35.5×0.1

3 2.5×3.5 25×0.35

4 0.06×0.4 $0.6 \div 0.4$

Fourth: Use the **standard algorithm** to find:

1 $4.25 \times 3.7 = \dots\dots\dots$

2 $5.6 \times 70.82 = \dots\dots\dots$

3 $98 \times 3.008 = \dots\dots\dots$

4 $45.5 \div 0.5 = \dots\dots\dots$

5 $0.6 \div 0.12 = \dots\dots\dots$

6 $14.224 \div 5.6 = \dots\dots\dots$

Fifth: Answer the following:

- 1 Huda bought **3** notebooks, each costing **4.75** LE, and **4** pens, each costing **1.25** LE.
How much did Huda pay in total?

.....

.....

.....

- 2 Hiam bought **17** juice boxes; the price of each one is **2.25** pounds.
How many pounds did she pay the seller?

And if she gives the seller **50** pounds, how does the seller return the remainder?

.....

- 3 The capacity of an oil barrel is **243.75** liters. If it was filled in bottles of **0.75** liters each, find the number of bottles.

.....

- 4 A rectangle has an area of **10.25** square meters and a length of **4.1** meters. Calculate the width and perimeter of the rectangle.

.....

.....

Accumulative Assessments

on Units 1-5

Assessment 1

First: Choose the correct answer:

1 0.01 kilogram = gram(s)

- a 1 b 10 c 100 d 1,000

2 $4.5 \times 12 =$

- a 540 b 0.54 c 5.4 d 54

3 The **smallest** odd prime number is

- a 0 b 1 c 2 d 3

Second: Complete the following:

1 $73.2 \times 0.1 =$

2 $65.4 \div 100 =$

3 The factors of **28** are

Third: Find the result using your preferred strategy:

1 $1.44 \div 0.6 =$

2 $2.45 \times 2.1 =$

3 $45.69 + 24.38 =$

4 $100.25 - 74.9 =$

Fourth: Compare using (<, =, or >):

1 Fifty and seventy-five hundredths 75.50

2 $4 + 0.2 + 0.05 + 0.004$ $40 + 2 + 0.5 + 0.04$

3 The smallest even prime number The smallest odd prime number

Fifth Answer the following:

Hussam caught a fish weighing **1.035** kg and Essam caught a fish weighing **825** grams. What is the difference between the weights of the two fish in kilograms?

.....

.....

.....

Assessment 2

First: Choose the correct answer:

- 1 Samah bought **three** books. The price of one book is **3.25** pounds, so the amount that Samah paid is pounds.
- a 9 b 10 c 9.75 d 9.5
- 2 The prime number whose factors' sum is 6 is
- a 6 b 5 c 12 d 7
- 3 If $a - 4.5 = 6$, then the variable "a" expresses
- a the sum of the two numbers
b the difference between the two numbers
c half of the two numbers d twice the two numbers
- 4 $4.6 \times \dots = 4,600$
- a 100 b 1,000 c 10 d 1

Second: Complete the following:

- 1 $700 + 8 + 0.3 + 0.009 = \dots$
- 2 The first 5 multiples of 6, except zero, are,,,, and
- 3 $1.02 \times 0.9 = \dots$

Third: Find the result using the strategy you prefer:

- 1 $5.635 \div 2.3 = \dots$ 2 $50.23 \times 15 = \dots$
- 3 $8.15 \times 0.1 = \dots$ 4 $7 \div 0.35 = \dots$

Fourth: Compare using (<, =, or >):

- 1 13×1.2 156×0.1 2 45.28 meters 4 kilometers
- 3 70 Hundredths 70 Thousandths 4 185×0.15 1.85×1.5



Assessment on Unit 6

First: Choose the correct answer:

1 $4.5 + 2.5 \times 2 = \dots\dots\dots$

a 9.5

b 14

c 9

d 14

2 $6 + 2.5 \times 0 - 2.7 = \dots\dots\dots$

a $6 + 2.7$

b 8.5×2.7

c $6 + 2.5 - 2.7$

d $6 - 2.7$

3 The mathematical expression that represents "Multiply 1.5 by 1.2, then subtract 0.5" is $\dots\dots\dots$

a $1.5 + 1.2 \times 0.5$

b $0.5 - 1.5 \times 1.2$

c $1.5 \times 1.2 - 0.5$

d $0.5 \times 1.2 - 0.5$

4 The mathematical expression " $1.2 + 2.5 \div 0.5$ " expresses $\dots\dots\dots$

a add 1.2 and 2.5, then divide by 0.5

b divide 2.5 by 0.5, then add 1.2

c add 0.5 and 1.2, then divide by 2.5

d divide 0.5 by 2.5, then add 1.2

5 $1.3 + 0.3 - 0.2 \times 2.5 = \dots\dots\dots$

a $1.3 + 0.1 \times 2.5$

b $2.6 - 0.1 \times 2.5$

c $1.3 + 0.3 - 0.5$

d $1.3 + 0.3 - 0.05$

6 The pattern rule of (11 , 22 , 33 , 44 , 55 , 66) is $\dots\dots\dots$

a $n + 11$

b $n - 11$

c $n \times 11$

d $n \div 11$

7 The next number in the pattern (1 , 3 , 5 , 7 , 9 , 11 ,) is $\dots\dots\dots$

a 20

b 15

c 13

d 22

8 $n \times 0.2$ is the rule of the pattern $\dots\dots\dots$

a 2 , 2.2 , 2.4 , 2.6 , 2.8 ,

b 2 , 0.4 , 0.08 , 0.016 ,

c 20 , 10 , 5 , 2.5 , 1.25 ,

d 8 , 7.8 , 7.6 , 7.4 , 7.2 , 7 ,

9 $[2 \times (4 + 0.5) - 4.5] \div 4.5 = \dots\dots\dots$

a 0

b 1

c 9

d 10

10 The rule of the opposite pattern is

a $n \times 3 - 1$

b $n \times 2 + 3$

c $n \times 3 + 1$

d $n + 1 \times 3$

Input	Output
2	7
4	13
6	19
8	25

Second: Complete the following:

1 $45 \times 2 + 3 \times 3 =$

2 $4.5 + [2 \times (5 - 4) - 1] =$

3 2, 2, 4, 6, 10, 16,

4 3, 6, 9, 12, 15,

5 $12.5 + 2.5 \times 1.4 - 6 =$

Third: For each problem, write an **expression** that matches the **clues**. Then, **evaluate** the expression:

1 Subtract 2.1 from 3.62, then multiply by 3.

.....

.....

.....

2 Divide 85 by 0.5, then add 136.7.

.....

.....

.....

Fourth: Using the given information, list the **first five** numbers in the pattern:

1 Starting number: 2

Rule: $n + 2.5$

.....

2 Starting number: 5

Rule: $n \times 2 - 2.5$

.....

3 Starting number: 40

Rule: $n \div 0.2$

.....

Fifth: Answer the following:

Monir travels **38.7** kilometers by bicycle in **two** hours. If he cycles at the same rate all the time, how many meters does he travel per minute?

.....

Accumulative Assessments

on Units 1-6

Assessment 1

First: Complete the following:

- 1 + 0.62 = 1
- 2 x 1,000 = 7,000
- 3 $4.2 \times 10 - 8.2 =$
- 4 If $x + 15.2 = 14.5 + 15.5$, then $x =$

Second: Choose the correct answer:

- 1 $6 + c = 2.1$ is called
 a an equation b an expression c multiplication d division
- 2 The multiplication problem that expresses the corresponding model is

	800	7
4		

 a 4×870 b 4×807 c 4×780 d 4×708
- 3 $1,001 \times 25 =$
 a 2,525 b 25,025 c 250,025 d 5,225
- 4 $2.51 \times$ = 0.0251
 a 0.1 b 0.01 c 0.001 d 100

Third: Match:

- 1 The difference between 5.5 and 3.7
- 2 The sum of 5.5 and 3.7
- 3 3.7 plus a number equals 5.5
- 4 5.5 minus a number equals 3.7
- 5 A number minus 3.5 equals 3.7

- a $3.7 + 5.5 = y$
- b $3.7 + a = 5.5$
- c $m - 3.5 = 3.7$
- d $5.5 - 3.7 = x$
- e $5.5 - n = 3.7$

Fourth: Answer the following:

- 1 Write the **rule** by finding the missing values in the table:

Rule:

Input	Output
39	.....
33	.....
27	9
21	7
.....	5

- 2 Find 18.2×2.8 :
- 3 While dividing a number by **3**, Ahmed got a quotient of **7** and a remainder of **2**.
What is that number?

Assessment 2

First: Complete the following:

- 1 $4.8 \div 6 \times 0.5 =$ 2 If $n = 2 \times 2 \times 7$, then $n =$
- 3 If $a \times 9 = 36$, then $a =$

4

		5
.....	.....	350
5	200	25

Second: Choose the correct answer:

- 1 If $k - 3.21 = 5$, then $k =$
 a $5 - 3.21$ b $5 + 3.21$ c 2 d 1.23
- 2 The greatest common factor of 21 and 7 is
 a 7 b 21 c 28 d 14

Accumulative Assessments on Units 1-6

3 $18 \div 3 = 6 \text{ R } \dots\dots\dots$

a 0

b 5

c 2

d 15

4 $1.5 + n$ is the rule of the pattern $\dots\dots\dots$

a 2.5, 3.5, 4.5, 5.5, 6.5, $\dots\dots\dots$

b 2, 3.5, 5, 6.5, 8, $\dots\dots\dots$

c 4, 4.5, 5, 5.5, 6, 6.5, $\dots\dots\dots$

d 2, 4.5, 7, 9.5, 12, 14.5, $\dots\dots\dots$

Third: Match:

1 $4.8 \div 0.2 \times 0.4 + 1.2$

2 $4.8 \div 0.2 \times (0.4 + 1.2)$

3 $4.8 \div (0.2 \times 0.4) + 1.2$

4 $4.8 \div [(0.2 \times 0.4) + 1.2]$

a 61.2

b 3.75

c 10.8

d 38.4

Fourth: Answer the following:

1 Write the **rule** by finding the missing values in the table:

Rule: $\dots\dots\dots$

Input	Output
5	$\dots\dots\dots$
7	10
9	12
11	14
$\dots\dots\dots$	16

2 Find: $5,262 \div 50$

(Using the **standard algorithm**)

3 Ali bought **24** boxes of soft drinks for **115** LE each. How much money did Ali pay?

Guide Answers Exercises Book

Theme 1

Unit 1

Concept 1

Lesson 1

- 1 **1** → c **2** → a
3 → d **4** → b
- 2 **1** 0.5 **2** 0.03 **3** 0.16
4 0.029 **5** 5.03 **6** 56.17
7 115.76 **8** 3,300.3
9 3,026,075.172
10 15,700,005.17
- 3 **1** Eight tenths
2 Twenty-three hundredths
3 Three hundred sixteen thousandths
4 Fifteen and three tenths
5 Five thousand, three hundred twenty-eight and ninety-six hundredths
6 Thirteen and six hundred twenty-nine thousandths
7 Three million, one hundred twenty thousand and three hundredths
- 4 **1** 359,040,006.79
2 6,000,070,096.005
3 Nine milliard, two hundred million, sixty-five and twenty-seven thousandths
4 Two hundred five thousand, nine and four hundredths
5 Tenths, 0.6 **6** 0, 0 **7** 0.09
8 Tenths **9** 3, 2, 5 **10** 0.709
- 5 **1** 7,000,050.000.07
2 Fifty-six million, five hundred and thirty-five thousandths
3 Hundred Thousands **4** 0.01
5 Tenths **6** 0.003 **7** 4.45
8 $2\frac{53}{1,000}$ **9** 3 **10** 0.060
11 0.609

Assessment on Lesson 1

First

- 1** 9,000,090,000.009
2 Six thousand, two hundred and nine hundredths
3 Ten Thousands
4 30.3 **5** 0.01

Second

- 1** a 400,030,000.03
2 b Three million, three and three thousandths
3 c 40.056 **4** c 8

Third

- 1** → c **2** → a **3** → b
4 → e **5** → d

Lessons 2&3

- 1 **1** 45.2 **2** 4,562.58 **3** 5.628
4 25.39 **5** 983.2
- 2 **1** 92.5 **2** 0.857 **3** increases
4 0.025 **5** 248 **6** decreases
7 89.3 **8** 0.638 **9** 27
10 4,583.6 **11** 2.5 **12** 3,500.876
13 25.025 **14** 235.48 **15** 63.025
16 0.043 **17** 0.36
18 $90 + 5 + 0.9 + 0.005$ **19** 8, 5, 3, 6
20 50.05
- 3 **1** 2.526 **2** 0.26 **3** 25.8
4 450 **5** 0.805
6 increases **7** right **8** 23.023
9 $824 + 0.12$ **10** increases from 0.7 to 7
- 4 **1** → b **2** → c
3 → d **4** → a
- 5 **1** 5, increased, 0.5, 5
2 7, increased, 0.07, 0.7
3 8, increased, 0.008, 0.08
4 0.578, increased, 0.578, 5.78,
 $0.578 \times 10 = 5.78$

Guide Answers

Assessment on Lessons 2&3

First

- 1 452.6 2 752.8 3 450.204
4 $20 + 0.05$ 5 8.5

Second

- 1 3.927 2 27 3 0.012
4 523.876 5 459

Third

- 1 → c 2 → a 3 → b
4 → e 5 → d

Lessons 4&5

- 1 1 > 2 < 3 =
4 > 5 < 6 <
7 > 8 > 9 <
10 = 11 < 12 >
13 < 14 = 15 >
- 2 1 270.3 2 560.38
3 180.60 4 900.900
- 3 1 100.50 2 90.025
3 100.002 4 8.237
- 4 1 a 5 b 69 c 1 d 100
2 a 4.6 b 110 c 0 d 56.9
3 a 1.26 b 63.83 c 1 d 2.00
4 a 45.369 b 0.326 c 1
- 5 1 a 5 b 9 c 0 d 1
e 13 f 70 g 101 h 1000
i 53
2 a 23.5 b 4.3 c 1.0 d 18.3
e 1.3 f 3.7 g 200.0 h 60.0 i 0
3 a 7.26 b 69.36 c 0.29 d 0.98
e 0.13 f 75.08 g 4.01 h 10.00
i 20.00
4 a 25.370 b 2,258.365 c 100.003
d 3.022 e 0.006 f 10
- 6 1 237 2 0.3 3 45.27
4 5.242 5 Tenth
6 Hundredth 7 whole number

- 8 $562.8 \approx 563$ 9 $5.6234 \approx 5.62$ 10 5.72
7 1 56.8 2 98.205 3 >
4 > 5 56.02 6 2.456
7 69.45 8 0.01 9 10
10 56.03

- 8 1 $56.025 < 56.052 < 56.25 < 56.502 < 56.52$
2 $60.05 > 50.06 > 6.005 > 5.060 > 5.006$

Assessment on Lessons 4&5

First

- 1 a < 2 d 75.34 3 b 78
4 c Hundredth 5 b 20.024

Second

- 1 458.03 2 458 3 458
4 460 5 500

Third

- 1 < 2 > 3 = 4 < 5 <

Fourth

- 1 65 2 81 3 2.88

Assessment on Concept 1

First

- 1 5,005,500,000.005 2 507.89
3 0.09 4 5,864.7 5 458.0

Second

- 1 d Eight hundred thousand and eight hundredths
2 c 752
3 a 4,040.44 4 c 75.599

Third

- 1 < 2 < 3 >
4 = 5 <

Fourth

- 1 → b 2 → a 3 → d
4 → e 5 → c

Fifth

147.72 $\approx$ 148 kilometers

Concept 2

Lessons 6&7

- 1 **1** a $56.4 + 25 = 81.4$ b $6.4 + 15.3 = 21.7$
 c $74.82 + 26.17 = 101.0$ d $8.3 + 1 = 9.3$
 e $63.3 + 7.8 = 71.1$ f $96.4 + 69.5 = 165.9$
- 2 **1** a $1 + 0.5 = 1.5$ b $26 + 3.5 = 29.5$
 c $7 + 3 = 10$ d $1 + 2 = 3$
 e $4.5 + 9 = 13.5$ f $6 + 4.5 = 10.5$
- 2 **1** 0.68 **2** 0.64 **3** 0.60
4 1.43 **5** 1.63
- 3 **1** 479.278 **2** 70,479.25
3 1,889.556 **4** 96,634.385 **5** 69,282.278
- 4 **1** 64.038 **2** 1,219.528
3 212.000 **4** 12.939
5 56,302.707 **6** 8,056.559
7 284.92 **8** 56,963.45
- 5 **1** $0.43 + 0.32 = 0.75$
2 $0.70 + 0.24 = 0.94$
3 $0.28 + 0.48 = 0.76$
4 $0.46 + 0.54 = 1$
5 $0.78 + 0.66 = 1.44$
6 $1.24 + 0.54 = 1.78$
- 6 **1** 15 **2** 60
3 721 **4** 118 **5** 430
- 7 **1** 1 **2** 0 **3** 1.5
4 114 **5** 12 **6** 52
7 6 **8** 12.43 **9** 0.55
10 1.3
- 8 **1** Second model **2** First model
3 $0.58 + 0.25$ **4** $0.9 + 0.48$ **5** 0.5
6 2 **7** 6.11 **8** 403
9 0.1 **10** 0.744
- 9 **1** $34.99 + 4.01 = 39.00 < 40$
 No, Malak didn't achieve her goal.
2 Total = $953.5 + 240.6 = 1,194.1$ kg
3 $4 + 1 = 5$ Yes, the fabric she has is enough.

Assessment on Lessons

6&7

First

- 1** a $0.15 + 0.28$ **2** b **3** d 37.95
4 b 0.25 **5** b 70.5

Second

- 1** $5 + 5 = 10$ **2** 9.4 **3** 67
4 455.582 **5** 0.38

Third

- 1** → c **2** → a **3** → b
4 → e **5** → d

Lessons 8-11

- 1 **1** 0.18 **2** 0.41 **3** 0.28
4 0.68 **5** 0.45
- 2 **1** 405.22 **2** 643.992 **3** 35.389
4 46.143 **5** 360.44
6 46,766.45
- 3 **1** 60.81 **2** 430.577 **3** 644.463
4 4.215 **5** 844.25 **6** 71.045
7 $39.56 - 24.36 = 15.2$
8 20,976.55
- 4 **1** $0.90 - 0.43 = 0.47$ **2** $0.54 - 0.30 = 0.24$
3 $0.68 - 0.46 = 0.22$ **4** $0.71 - 0.22 = 0.49$
5 $1.53 - 0.97 = 0.56$ **6** $1.04 - 0.9 = 0.95$
- 5 **1** a $75 - 27.2 = 47.8$ b $9.2 - 5.2 = 4$
 c $25,152.2 - 105.5 = 25,046.7$
 d $45.3 - 7.4 = 37.9$
 e $56.3 - 9.8 = 46.5$
 f $765.3 - 7.6 = 757.7$
- 2 **1** a $1 - 0.5 = 0.5$ b $25 - 3.5 = 21.5$
 c $9 - 2 = 7$ d $2 - 0.5 = 1$
 e $7 - 0.5 = 6.5$ f $15 - 8 = 7$
- 6 **1** 64 **2** 35 **3** -46
4 103 **5** 450 **6** +76
- 7 **1** 41 **2** 91.3 **3** 1.1
4 2.5 **5** 70 **6** 66
7 5 **8** 906.81 **9** 0.55
10 48.23

Guide Answers

- 8 **1** First model **2** First model
3 $0.83 - 0.4$ **4** $1.72 - 1.17$ **5** 72.84
6 20.2 **7** 71 **8** 285
9 3.98 **10** 0.786
- 9 **1** $7,520.25 + 5,640.5 = 13,160.75$ pounds
 $15,000 - 13,160.75 = 1,839.25$ pounds
2 $675.5 - 239.47 = 436.03$ km
3 $0.5 + 0.7 = 1.2$ L. $1.5 - 1.2 = 0.3$ L.

Assessment on Lessons 8–11

First

- 1** **a** $0.42 - 0.27$ **2** **a**
3 **a** 4.55 **4** **c** 0.53 **5** **d** 7.55

Second

- 1** 2 **2** 11.2 **3** 85
4 30.621 **5** 1

Third

- 1** $\rightarrow$ **b** **2** $\rightarrow$ **a** **3** $\rightarrow$ **d**
4 $\rightarrow$ **e** **5** $\rightarrow$ **c**

Fourth

Sum = $29.28 + 29.255 + 35.17 = 93.705$ cm
 Difference = $35.17 - 29.255 = 5.915$ cm

Assessment on Concept 2

First

- 1** 6.2 **2** 94 **3** 45.25
4 16.776 **5** 495

Second

- 1** **a** $0.5 - 0.27$ **2** **d** $0.22 + 0.30$ **3** **a** 3
4 **d** 2 **5** **b** 267

Third

- a** $\rightarrow$ **2** **b** $\rightarrow$ **1**
c $\rightarrow$ **4** **d** $\rightarrow$ **3**

Fourth

$12.25 + 15.5 = 27.75$ pounds
 $56.5 - 27.75 = 28.75$ pounds

Unit 2

Concept 1

Lesson 1

- 1** **1** mathematical expression
2 mathematical expression
3 other **4** equation
5 equation **6** other
7 other **8** $12.5 + x = 15$
9 $a - 12 = 7.5$ **10** number of boys
11 the money he has now
12 the height of other plant
13 $y - 36.5 = 2.15$ **14** perimeter
15 $12.5 + 3.25 = b$
- 2** **1** $x = 125 - 65.5 = 59.5$ pound
2 $15 + 21 = x = 36$ **3** $x = 90 - 75 = 15$
4 $x = 145 + 20$ **5** $x = 255 - 107.5 = 147.5$
- 3** **1** $\rightarrow$ **d** **2** $\rightarrow$ **a** **3** $\rightarrow$ **b**
4 $\rightarrow$ **e** **5** $\rightarrow$ **c**

Assessment on Lesson 1

First

- 1** **b** a mathematical expression
2 **c** an equation
3 **a** the number of girls
4 **c** the difference between the heights of his colleagues
5 **d** $m = 4.25 - 3.79$

Second

- 1** $\rightarrow$ **b** **2** $\rightarrow$ **a** **3** $\rightarrow$ **e**
4 $\rightarrow$ **c** **5** $\rightarrow$ **d**

Lessons 2&3

- 1** **1** 2.79 **2** 15.41 **3** 4.25
4 11.88 **5** 3.9 **6** 3.957

- | | | |
|----------------------|---------------|----------------|
| 7 38 | 8 1 | |
| 2 1 10 | 2 14.8 | 3 59.46 |
| 4 16 | 5 39 | 6 60 |
| 7 6 | 8 15.5 | |
| 3 1 45 | 2 60 | 3 27 |
| 4 5.83 | 5 17.5 | |

4 Answer by yourself.

Assessment on Lessons 2&3

First

- 1** **d** 11.55
2 **c** 6.875
3 **c** $7 - (2.5 + 3.4)$
4 **a** 9.9

Second

- 1** 6.5 **2** 2.093 **3** 6.525

Third

- | | |
|--|-------------|
| 1 $\rightarrow a = 63.8 - 35.2$ | $a = 28.6$ |
| 2 $\rightarrow a = 24.8 + 35.2$ | $a = 60$ |
| 3 $\rightarrow a = 10 - 6.15$ | $a = 3.85$ |
| 4 $\rightarrow a = 45.16 - 13.48$ | $a = 31.68$ |

Assessment on Concept 1

First

- 1** **c** an equation
2 **a** 13.40
3 **c** the amount he spent
4 **a** $m = 6.35 + 3.14$

Second

- 1** 0.5 **2** 1.68 **3** 2.51
4 $f = 9.07 - 0.28 = 8.79$

Third

- 1** **x** **2** **✓** **3** **x**
4 **x**

Concept 2

Lesson 4

- | | | |
|--|---|-------------------|
| 1 1 2×3 | 2 2×5 | |
| 3 $2 \times 2 \times 3$ | 4 $2 \times 2 \times 2 \times 2$ | |
| 5 $2 \times 3 \times 3$ | 6 $2 \times 2 \times 2 \times 3$ | |
| 7 $2 \times 2 \times 2 \times 2 \times 2$ | | |
| 8 $2 \times 2 \times 3 \times 3$ | | |
| 2 1 2 | 2 2 | 3 2 |
| 4 3 | 5 Prime number | 6 11 |
| 7 2, 3, 5, 7 | 8 2 | 9 16 |
| 10 3, 7 | 11 0, 2, 4, 6, 8 | 12 18 |
| 3 1 1 | 2 59 | |
| 3 30 | 4 has two factors only | |
| 5 prime | 6 $2 \times 2 \times 3$ | 7 8 |
| 4 1 ✓ | 2 ✓ | 3 ✓ |
| 4 x | 5 x | 6 x |
| 7 ✓ | 8 ✓ | 9 x |

Assessment on Lesson 4

First

- 1** **c** 5 **2** **a** $2 \times 2 \times 3$ **3** **c** 11
4 **b** 14

Second

- 1** $\rightarrow$ **c** **2** $\rightarrow$ **a** **3** $\rightarrow$ **b**

Third

- 1** 2 **2** 4 **3** 5×5 **4** 20

Fourth

- 1** $45 = 3 \times 3 \times 5$
2 $32 = 2 \times 2 \times 2 \times 2 \times 2$
3 $60 = 2 \times 2 \times 3 \times 5$

Lesson 5

- 1** **1** 4 **2** 4 **3** 9

Guide Answers

- 4 1 5 8 6 12
 7 15 8 14 9 8
 10 18
 2 1 16 2 45 3 17
 4 2×13 5 1 6 7
 7 11 8 97
 3 1 2×7 2 $2 \times 2 \times 2 \times 2$
 3 one 4 the smaller number
 5 14 6 1 7 12

Assessment on Lesson

5

First

- 1 b 2, 7 2 c 1
 3 a 7 4 d 30

Second

- 1 28 2 1, 23 3 19
 4 1 5 5

Third

- 1 10 2 12

Fourth

GCF = 4

Lessons 6&7

- 1 1 6, 12, 21, 30, 42
 2 0, 18, 30, 42, 60
 3 10, 40, 50, 100
 4 25, 45, 85, 150, 15
 5 14, 35, 49, 63, 77
 2 1 a 0, 3, 6, 9, 12, 15, 18, 21, 24, 27
 b 0, 6, 12, 18, 24 c 0, 6, 12, 18, 24
 d 6
 2 a 0, 6, 12, 18, 24, 30, 36
 b 0, 4, 8, 12, 16, 20, 24 c 0, 12, 24
 d 12
 3 a 0, 8, 16, 24, 32
 b 0, 4, 8, 12, 16, 20, 24, 28, 32, 36

c 0, 8, 16, 24, 32 d 8

4 a 0, 6, 12, 18, 24

b 0, 8, 16, 24, 32, 40, 48, 56

c 0, 24

d 24

3 1 27

2 7

3 0

4 18

5 40

6 Composite number

7 factor

8 multiples

9 the product of the two numbers

10 the largest number

4 1 GCF = 2, LCM = 24

2 GCF = 4, LCM = 48

3 GCF = 3, LCM = 30

4 GCF = 2, LCM = 40

5 GCF = 6, LCM = 36

6 GCF = 7, LCM = 42

7 GCF = 14, LCM = 28

8 GCF = 12, LCM = 72

Assessment on Lessons

6&7

First

- 1 c 16 2 c 8 3 a 0
 4 b 8 5 b 15

Second

- 1 composite number 2 factor
 3 multiples 4 One 5 prime

Third

1 GCF = 8, LCM = 16

2 GCF = 5, LCM = 60

Fourth

1 0, 8, 16, 24, 32, 40, 48

2 0, 12, 24, 36, 48

3 0, 24, 48

4 LCM = 24

Lesson 8

- 1
 - 1 GCF = 4, LCM = 24
 - 2 GCF = 3, LCM = 18
 - 3 GCF = 4, LCM = 80
 - 4 GCF = 7, LCM = 42
 - 5 GCF = 3, LCM = 30
 - 6 GCF = 8, LCM = 48
 - 7 GCF = 15, LCM = 90
 - 8 GCF = 5, LCM = 75
- 2
 - 1 12 days 2 15 cm
 - 3 63 fruits 4 6 o'clock
 - 5 9 bags, 2 kg of oranges, 3 kg of apples
 - 6 4 groups, 3 doctors, 7 nurses
 - 7 12 groups, 2 pens, 3 notebooks 8 12 days

Assessment on Lesson 8

First

- 1 c 6 2 b 24
- 3 c 12 4 d 18

Second

- 1 24 2 $3 \times 3 \times 3$
- 3 6 4 24

Third

- 1 LCM = 40 pencils 2 GCF = 6 bags

Assessment on Concept 2

First

- 1 a prime 2 a 20
- 3 d 36 4 c 6

Second

- 1 1 2 5 3 0
- 4 30 5 40, 5, 8

Third

- 1 x 2 x 3 x
- 4 ✓ 5 ✓

Fourth

GCF = 7 groups, 3 pens, 5 notebooks

Unit 3

Concept 1

Lesson 1

- 1
 - 1 120 2 3,465
 - 3 5,052 4 868
 - 5 414 6 2,322
 - 7 4,284 8 40,050
 - 9 16,191 10 3,752
 - 11 3,900 12 12,375
- 2
 - 1 $5 \times 86 = 430$ 2 $7 \times 43 = 301$
 - 3 $8 \times 207 = 1,656$ 4 $9 \times 457 = 4,113$
 - 5 $83 \times 25 = 2,075$ 6 $29 \times 54 = 1,566$
 - 7 $47 \times 520 = 24,440$ 8 $17 \times 302 = 5,134$
 - 9 $25 \times 359 = 8,975$ 10 $29 \times 689 = 19,981$
 - 11 $47 \times 927 = 43,569$
- 3
 - 1 5×183 2 4×807
 - 3 36×27 4 19×375
 - 5 First model 6 Third model
 - 7 Third model 8 23×32
- 4
 - 1 $7 \times 10 = 70$ pounds
 - 2 $5 \times 100 = 500$ pounds
 - 3 $4 \times 10,000 = 40,000$ pounds
 - 4 $8 \times 200 = 1,600$ balls

Assessment on Lesson 1

First

- 1 a First model 2 c 75×408
- 3 c 24×32 4 a

Second

- 1 $40 \times 23 = 920$ 2 $6 \times 247 = 1,482$
- 3 $33 \times 45 = 1,485$ 4 $75 \times 45 = 3,375$

Third

$5 \times 1,000 = 5,000$ m

Guide Answers

Lesson 2

- 1 **1** $(8 \times 7) + (8 \times 20) = 56 + 160 = 216$
2 $(6 \times 7) + (6 \times 20) = 42 + 120 = 162$
3 $(7 \times 6) + (7 \times 300) = 42 + 2,100 = 2,142$
4 $(9 \times 3) + (9 \times 80) + (9 \times 200)$
 $= 27 + 720 + 1,800 = 2,547$
5 $(10 \times 70) + (10 \times 9) + (5 \times 70) + (5 \times 9)$
 $= 700 + 90 + 350 + 45 = 1,185$
6 $(20 + 3) \times (60 + 8) = (20 \times 60) + (20 \times 8) +$
 $(3 \times 60) + (3 \times 8) = 1,200 + 160 + 180 + 24 = 1,564$
7 $(20 + 4) \times (600 + 20 + 4)$
 $= (20 \times 600) + (20 \times 20) + (20 \times 4) +$
 $(4 \times 600) + (4 \times 20) + (4 \times 4) = 14,976$
- 2 **1** $(8 \times 40) + (8 \times 5) = 320 + 40 = 360$
2 $(7 \times 200) + (7 \times 8) = 1,400 + 56 = 1,456$
3 $(60 \times 50) + (60 \times 3) + (4 \times 50) + (4 \times 3) = 3,392$
4 $(10 \times 40) + (10 \times 7) + (3 \times 40) + (3 \times 7) = 611$
5 $(20 \times 400) + (20 \times 70) + (20 \times 4) + (4 \times 400) +$
 $(4 \times 70) + (4 \times 4) = 8,000 + 1,400 + 80 +$
 $1,600 + 280 + 16 = 11,376$
6 $(60 \times 100) + (60 \times 70) + (60 \times 4) + (7 \times 100) +$
 $(7 \times 70) + (7 \times 4) = 6,000 + 4,200 + 240 + 700 +$
 $490 + 28 = 11,658$
- 3 **1** $160 + 56 = 216$
2 $5,400 + 63 = 5,463$
3 $2,800 + 120 + 420 + 18 = 3,358$
4 $2,000 + 140 + 300 + 21 = 2,461$
5 $10,000 + 1,600 + 80 + 2,000 + 320 + 16 = 14,016$
6 $12,000 + 4,800 + 180 + 800 + 320 + 12 = 18,112$
- 4 **1** 1,215 **2** 1,095 **3** 10,059
4 7,904
- 5 **1** $8 \times (100 + 70 + 8)$ **2** 6×237
3 $(40 + 5) \times (30 + 6)$
4 $(70 \times 10) + (70 \times 5) + (2 \times 10) + (2 \times 5)$
5 37×520 **6** , **7** Answer by yourself.
- 6 **1** 5×602 **2** $400 + 20$ **3** 235

- 4** $(50 + 6) \times (90 + 3)$ **5** 83×57
6 56×56 **7** 48×207
8 First model **9** Third model
10 Second model

Assessment on Lesson 2

First

- 1** **b** 7×504 **2** **a** 67×23 **3** **a**
4 **c** $4 \times (600 + 9)$
5 **a** $50 + 6$

Second

- 1** $7 \times (7,000 + 400 + 80) = 52,360$
2 40, 6, 40, 6 **3** 24×506
4 6,230 **5** 500, 5

Third

- 1** 178 **2** 4,005 **3** 26,961

Assessment on Concept 1

First

- 1** **c** 5,000 **2** **b** $2 \times 1,000$ **3** **a**
4 **c** 42×69 **5** **b** 12×302

Second

- 1** 10,000 **2** 7 **3** 12×57
4 623 **5** 900, 3

Third

- 1** 94 **2** 322

Fourth

$12 \times 25 = 300$ passengers

Concept 2

Lessons 3-5

- 1** **1** 328 **2** 5,472 **3** 1,848
4 74,592 **5** 975 **6** 2,700
7 5,508 **8** 33,318 **9** 147,852
10 291,504 **11** 634,372 **12** 309,696

- 2 **1** 114,384 **2** 158,100 **3** 118,918
4 454,464 **5** 258,468 **6** 233,988
 3 **1** 816 **2** 777 **3** 12,772
4 15,695 **5** 85,428 **6** 230,940

4 **1** Actual product: 87,900 $\approx$ Estimate 70,000

2 Actual product: 167,869 $\approx$ 200,000

3 Actual product: 32,396 $\approx$ 20,000

4 Actual product: 215,016 $\approx$ 180,000

5 **1** $22 \times 25 = 550$ passengers

2 Area = $256 \times 62 = 15,872$ square meters

3 $9,560 \times 34 = 325,040$ piasters

4 $1,285 \times 21 = 26,985$ cm

5 $9,865 \times 12 = 118,380$ pounds

6 $1,023 \times 18 = 18,414$ pounds

7 $8,234 \times 16 = 131,744$ pounds

8 $2,445 \times 45 = 110,025$ g

Assessment on Concept 2

First

1 **a** $5,403 \times 67$ **2** **b** $3,052 \times 43$ **3** **a**

4 **d** 75,150 **5** **a** 69,000

Second

1 116,840

2 576,448

3 157,250

Third

$18 \times 15 + 18 \times 25 = 270 + 450 = 720$ pounds

Theme 2

Unit 4

Concept 1

Lessons 1&2

- 1 **1** 24 **2** 17 (R2) **3** 28 (R1)
4 93 **5** 63 **6** 89 (R2)
7 473 **8** 123 **9** 112 (R2)
10 689 **11** 918 **12** 769 (R1)
13 1,407 (R2)

- 2 **1** 47 **2** 67 (R11) **3** 34
4 45 **5** 63 **6** 35
7 237 **8** 205 **9** 357
10 392 **11** 605
12 1,654 **13** 1,233 (R42)

- 3 **1** $552 \div 23 = 24$
2 $1,522 \div 24 = 63$ (R10)
3 $4,635 \div 45 = 103$
4 $7,776 \div 32 = 243$
5 $1,856 \div 15 = 123$ (R11)
6 $10,016 \div 32 = 313$
7 $8,575 \div 35 = 245$
8 $7,631 \div 21 = 363$ (R8)

- 4 **1** 1,248 , 0
2 16,817 , 31 , 542 , 15
3 53,328 , 24 , 2,222 , 0
4 25,716
5 10,092 , 42 , 240 , 12

- 5 **1** Solution: 406 , Estimate: 400
2 Solution: 1,147 (R2) , Estimate: 1,100
3 Solution: 4,002 (R6) , Estimate: 4,000
4 Solution: 345 , Estimate: 300
5 Solution: 46 (R74) , Estimate: 50

Guide Answers

- 6 Solution: 48 (R55) , Estimate: 50
 7 Solution: 412 , Estimate: 400
 8 Solution: 2,555 , Estimate: 2,500
 9 Solution: 251 (R15) , Estimate: 250
 10 Solution: 308 , Estimate: 300

Assessment on Lessons 1&2

First

- 1 c $1,960 \div 8 = 245$
 2 a 14 3 d 0
 4 c 4,035 5 a 5

Second

- 1 817 (R6)
 2 302 (R10)
 3 3,208 (R10)

Third

- 1 $400 \div 4 = 100$ LE
 2 $138 \div 6 = 23$ people

Assessment on Concept 1

First

- 1 d 146 2 d 4
 3 c 450 4 a 20

Second

- 1 5,026 (R6) 2 3,859 3 258
 4 3,012 (R9)

Third

- 1 9,000 2 5
 3 340,000 4 36,000

Fourth

- 1 $7,280 \div 5 = 1,456$ pounds
 2 $168 \div 12 = 14$ groups

Concept 2

Lessons 3-5

- 1 1 15 2 28 (R2) 3 26
 4 208 (R2) 5 252 6 131
 7 295 8 472 (R2) 9 705
 10 2,004 11 3,059 12 7,006
 2 1 24 2 11 3 125
 4 205 5 303 6 124 (R12)
 7 105 8 214 9 347 (R17)
 10 2,581 11 2,214 12 2,451
 3 1 123 2 189 3 1,324
 4 1 35 2 6,048 3 4
 4 1,998 5 4,876 6 3,479
 7 105 8 102 9 111
 10 14,042
 5 1 $140 \div 12 = 11$ (R8) $\rightarrow$ 12 trays are needed
 2 $11,655 \div 37 = 315$ m
 3 Mighty Steel: $3 \times 100,000 = 300,000$ LE
 Silver Steel: $5 \times 70,000 = 350,000$ LE
 Money saved = $350,000 - 300,000 = 50,000$ LE
 4 Zeinab used = $12 \times 18 = 216$ squares
 Reem used = $13 \times 13 = 169$ squares
 The difference = $216 - 169 = 47$ squares
 5 Profit: $(30 \times 25) \times 3 = 2,250$ LE
 Basketball = $2,250 - 1,134 = 1,116$ LE
 6 The distance = $465 - (124 + 210)$
 $= 465 - 334 = 131$ km
 7 The price of one book = $1,875 \div 25 = 75$ pounds
 The price of 25 books = $36 \times 75 = 2,700$ pounds
 8 The remaining money = $163,500 - 85,500 =$
 78,000 pounds
 The value of each installment = $78,000 \div 24$
 $= 3,250$ pounds

- 9 Total number of students = $456 + 419$
 = 875 students
 Number of students in each class = $875 \div 25$
 = 35 students

- 10 The area of land = $124 \times 85 = 10,540$ square meters
 The number of basins = $10,540 \div 62 = 170$ basins

Assessment on Concept 2

First

- 1 d 437 2 b 25 3 c 26
 4 a $22 \times 36 + 10$ 5 b 40

Second

- 1 240,000 2 500 3 0
 4 8 5 18,000

Third

The remaining people = $205 - 40 = 165$ persons
 Number of minibuses = $165 \div 11 = 15$ minibuses

Unit 5

Concept 1

Lessons 1&2

- | | | |
|----------|-----------|------------|
| 1 1 120 | 2 900 | 3 101,000 |
| 4 6.5 | 5 0.26 | 6 0.017 |
| 7 5 | 8 75 | 9 256 |
| 10 0.02 | 11 0.0036 | 12 0.00012 |
| 13 32.5 | 14 412 | 15 3,190 |
| 16 4.212 | 17 0.5512 | 18 0.03601 |
| 19 0.2 | 20 36 | 21 170 |
| 22 0.635 | 23 0.4214 | 24 0.0031 |
| 2 1 12.5 | 2 2.4 | 3 12.15 |
| 4 0.84 | 5 1.56 | 6 0.102 |
| 7 16.65 | 8 86.04 | 9 0.759 |
| 10 0.04 | 11 0.405 | 12 19.05 |
| 13 28.8 | 14 5.85 | 15 81.4 |
| 16 56.7 | 17 223.6 | 18 246 |
| 19 136.4 | 20 93.15 | 21 8.395 |
| 22 18.6 | 23 36.24 | 24 40.32 |
| 3 1 5 | 2 33 | 3 20 |
| 4 7 | 5 3 | 6 2 |
| 7 0.5 | 8 0.5 | 9 0.7 |
| 10 2.4 | 11 2.4 | 12 17 |
| 13 10 | 14 100 | 15 1,000 |
| 16 0.1 | 17 0.01 | 18 0.001 |
| 19 1,000 | 20 100 | 21 10 |
| 22 0.1 | 23 1,000 | 24 0.001 |
| 4 1 = | 2 < | 3 < |
| 4 < | 5 > | 6 < |
| 7 = | 8 = | 9 > |
| 10 > | | |
| 5 1 → c | 2 → a | |
| 3 → d | 4 → b | |

Guide Answers

- 6 **1** 1.5 **2** 4 **3** 12
4 3 **5** 12 **6** 2, left
7 10 **8** 0.001 **9** 0.4, 40
10 20 **11** 0.1 **12** 800
13 2 **14** 1.1 **15** 3

Assessment on Lessons 1&2

First

- 1** 800 **2** 0.3 **3** 0.045
4 14 **5** 525

Second

- 1** = **2** > **3** >
4 < **5** <

Third

- 1** → **b** **2** → **d**
3 → **a** **4** → **c**

Fourth

- 1** 12 **2** 33.68 **3** 3, left
4 0.1 **5** 0.092

Lessons 3&4

- 1** **1** 0.06 **2** 0.16 **3** 0.48
4 0.07 **5** 0.12 **6** 0.45
7 0.28 **8** 0.45 **9** 0.77
10 0.48
2 **1** $0.3 \times 0.4 = 0.12$ **2** $0.7 \times 0.8 = 0.56$
3 $0.4 \times 0.8 = 0.32$ **4** $0.2 \times 0.2 = 0.04$
5 $0.8 \times 0.8 = 0.64$ **6** $0.1 \times 0.7 = 0.07$
7 $0.3 \times 1.3 = 0.39$ **8** $0.6 \times 1.7 = 1.02$
9 $1.1 \times 0.2 = 0.22$
10 $0.3 \times 1.7 = 0.51$
3 **1** 3.78 **2** 0.376 **3** 121.8
4 2.88 **5** 1.824 **6** 182.7
7 0.54 **8** 46.62 **9** 0.648

- 10** 283.5 **11** 141.75 **12** 2.898
13 148.4 **14** 111.851 **15** 2.422
16 6.069

- 4** **1** $0.4 \times 0.52 = 0.208$ **2** $7 \times 2.3 = 16.1$
3 $0.3 \times 21.4 = 6.42$ **4** $0.27 \times 4.3 = 1.161$
5 $3.5 \times 45 = 157.5$ **6** $0.92 \times 0.54 = 0.4968$
7 $47 \times 0.142 = 6.674$ **8** $4.7 \times 3.49 = 16.403$
5 **1** 1.6×0.8 **2** 0.9×0.3 **3** 50.3×7.32
4 5.07×22.3 **5** 1,200 **6** 7.2
7 = **8** <

Assessment on Lessons 3&4

First

- 1** $0.2 \times 0.2 = 0.04$ **2** $0.4 \times 0.7 = 0.28$
3 $0.6 \times 0.2 = 0.12$ **4** $0.4 \times 1.3 = 0.52$
5 $0.2 \times 1.6 = 0.32$

Second

- 1** $2.9 \times 0.7 = 2.3$
2 $10.08 \times 90.2 = 909.216$
3 $852 \times 0.24 = 204.48$

Third

- 1** 0.2 **2** 0.3
3 2.5 **4** 400

Fourth

The area of one wall = $15 \times 4 = 60$ square meter
The painted area = $60 \times 4 = 240$ square meter

Lessons 5&6

- 1** [$35 \times 12 = 70 + 350 = 420$]
1 42 **2** 4.2 **3** 4.2
4 0.42 **5** 0.42 **6** 4.2
7 42 **8** 0.042
2 [$105 \times 24 = 420 + 2,100 = 2,520$]
1 252 **2** 25.2 **3** 25.2
4 2.52 **5** 2.52 **6** 25.2

- 7 252 8 0.252
 3 1 25.2 2 1.84 3 54.63
 4 6.912 5 26.963 6 70.056
 7 481.91 8 42.875 9 10.795
 10 96.672 11 72.072 12 78.48
 4 1 = 2 > 3 <
 4 = 5 < 6 =
 7 < 8 > 9 > 10 <

- 5 1 Nada paid = $26 \times 43.5 = 1,131$ pounds
 2 Khaled paid = $9.5 \times 12.7 = 120.65$ pounds
 3 The price = $12 \times 22.25 = 267$ LE
 4 $10 \times 92.5 = 925$ pounds,
 $6.5 \times 58 = 377$ pounds
 The merchant paid = $925 + 377 = 1,302$ pounds
 5 $7.9 + 3.6 = 11.5$ km
 $11.5 \times 6 = 69$ km

Assessment on Lessons 5&6

First

- 1 0.825 2 2.1 3 0.0006
 4 0.03 5 0.03

Second

- 1 $12.88 \approx 12.9$ 2 $2.044 \approx 2.04$
 3 $128.96 \approx 129$

Third

- 1 12.204 2 12.204 3 1220.4
 4 12.204 5 1.2204 6 0.12204

Fourth

- 1 > 2 > 3 = 4 <

Lessons 7-9

- 1 1 $8,523 \times 0.001 = 8.523$
 2 $954 \times 0.001 = 0.954$
 3 $25 \times 0.001 = 0.025$
 4 $78 \times 1,000 = 78,000$

- 5 $2.5 \times 1,000 = 2,500$
 6 $1.24 \times 1,000 = 1,240$
 7 $23 \times 1,000 = 23,000$
 8 $0.753 \times 1,000 = 753$
 9 $235 \times 0.001 = 0.235$
 10 $3,235 \times 0.001 = 3.235$
 11 $32 \times 100 = 3,200$
 12 $3.35 \times 100 = 335$
 13 $0.12 \times 10 = 1.2$
 14 $45 \times 0.01 = 0.45$
 15 $1,247 \times 0.01 = 12.47$
 16 $7.5 \times 10 = 75$
 17 $7.5 \times 1,000 = 7,500$
 18 $85 \times 0.001 = 0.085$
 19 $235 \times 0.1 = 23.5$
 20 $2.8 \times 10 = 28$

- 2 1 6,520 2 0.549 3 0.062
 4 63,500 5 0.45 6 2.8
 7 3,200 8 0.045 9 45 10 25.6
 3 1 > 2 = 3 < 4 >
 5 > 6 > 7 < 8 >
 9 < 10 >
 4 1 X 2 ✓ 3 ✓ 4 X
 5 X 6 X 7 ✓ 8 ✓
 9 ✓ 10 X

- 5 1 The increase = $145 - 134 = 11$ cm
 2 Hazem paid = $7 \times 23.5 = 164.5$ pounds
 3 Weight of mangoes = $5 \times 9,500 = 47,500$ g
 Weight of peaches = $3 \times 4,600 = 13,800$ g
 Total = $47,500 + 13,800 = 61,300$ g
 4 The sum = $145 + 164 = 309$ cm
 The difference = $164 - 145 = 19$ cm
 5 $1,250 + 2,450 = 3,700$ mL
 $4,000 - 3,750 = 300$ mL

Guide Answers

Assessment on Lessons

7-9

First

- 1 **c** 7,850 2 **a** 0.46 3 **d** 5,200
4 **a** 10 5 **b** 2.5

Second

- 1 $456 \times 0.01 = 4.56$
2 $5.9 \times 1,000 = 5,900$
3 $4,258 \times 0.01 = 42.58$
4 0.001

Third

- 1 $>$ 2 $=$ 3 $<$ 4 $<$

Fourth

The cat: $7 + 0.45 = 7.45$ kg

The dog: $17 + 0.12 = 17.12$ kg

Total = $7.45 + 17.12 = 24.57$ kg

Assessment on Concept 1

First

- 1 **c** 0.3×0.5 2 **b** 3 **c** 4
4 **d** 480 5 **a** 0.024

Second

- 1 0.001 2 0.0288
3 $26 \times 10 = 260$
4 $4,258 \times 0.001 = 4.258$ 5 0.28

Third

- 1 $<$ 2 $>$ 3 $<$ 4 $<$

Fourth

- 1 The distance = $58.7 \times 9 = 528.3$ km
2 The price = $20 \times 65.5 = 1,310$ pounds

Concept 2

Lessons 10&11

- 1 1 1.7 2 0.08 3 0.102
4 450 5 2,300 6 45,000
7 0.06 8 0.0012 9 0.125
10 9 11 27 12 420
13 0.424 14 0.0813 15 0.417
16 617.5 17 4,572 18 27,040
19 0.007 20 0.0096 21 0.034
22 56.3 23 6,375 24 4,200
25 0.635 26 0.4214 27 0.031
2 1 8 2 632 3 20,000
4 6 5 4 6 0.3
7 3 8 7 9 9
10 0.24 11 0.025 12 0.96
13 0.01 14 0.01 15 0.001
16 10 17 100 18 1,000
19 0.001 20 0.01 21 0.1
22 10 23 0.001 24 1,000
3 1 0.1, 10 2 1,000, 0.001
3 10, 0.1 4 100, 0.01
5 0.01, 100 6 10, 0.1
7 100, 0.01 8 0.1, 10
9 0.001, 1,000 10 0.001, 1,000
11 1,000, 0.001 12 0.001, 1,000
4 1 $\rightarrow$ b 2 $\rightarrow$ c 3 $\rightarrow$ a
4 $\rightarrow$ e 5 $\rightarrow$ d
5 1 $<$ 2 $>$ 3 $=$
4 $<$ 5 $=$ 6 $=$
7 $<$ 8 $>$ 9 $>$ 10 $=$
6 1 $65 \times 1,000 = 65,000$
 $65 \div 0.001 = 65,000$
2 $2.5 \times 100 = 250$
 $2.5 \div 0.01 = 250$

3 $5 \times 1,000 = 5,000$

$5 \div 0.001 = 5,000$

4 $923 \times 0.001 = 0.923$

$923 \div 1,000 = 0.923$

5 $23 \times 1,000 = 23,000$

$23 \div 0.001 = 23,000$

6 $25 \times 0.1 = 2.5$

$25 \div 10 = 2.5$

7 $225 \times 0.001 = 0.225$

$225 \div 1,000 = 0.225$

8 $200 \times 0.001 = 0.2$

$200 \div 1,000 = 0.2$

9 $2.5 \times 10 = 25$

$2.5 \div 0.1 = 25$

10 $42 \times 10 = 420$

$42 \div 0.1 = 420$

Assessment on Lessons 10&11

First

1 0.45

2 0.025

3 1,250

4 57.4

5 0.56

6 20

7 0.1

8 0.01

9 785

10 1,000

Second

1 $137 \times 0.01 = 1.37$

$137 \div 100 = 1.37$

2 $86 \times 1,000 = 86,000$

$86 \div 0.001 = 86,000$

3 $8,102 \times 0.001 = 8.102$

$8,102 \div 1,000 = 8.102$

Third

1 =

2 <

3 <

4 <

Lessons 12&13

1 1 26.2

2 2.96

3 0.947

4 6.37

7 24.3

2 1 0.35

4 5.04

7 1.14

3 1 113.1

4 2.56

7 505

10 9.88

4 1 0.53

4 310

7 5.3

10 16.43

13 164.3

5 1 =

4 =

7 <

6 1 $350 \div 12.5 = 28$ days

2 $99 \div 5 = 19.8$ pounds

3 $214.2 \div 9 = 23.8$ pounds

4 $728 \div 5 = 145.6$ pounds

5 $210 \div 4 = 52.5$ L

6 $(6 \times 4.25) \div 2 = 12.75$ kg

7 $3,000 \times 14 = 42,000$ m = 42 km

$42 + 14 = 56$ km

8 $(20 - 4.5) \div 5 = 3.1$ kg

Assessment on Lessons 12&13

First

1 29

2 13.3

3 25

Second

1 4,340

2 434

3 43.4

4 43,400

5 4.34

6 12

7 1.2

8 12

9 120

10 0.012

Guide Answers

Third

1 → b

2 → a

3 → d

4 → e

5 → c

Assessment on Concept 2

First

1 a 0.045

2 b 6

3 d 100

4 d 9.6×10

5 c 25

Second

1 0.1

2 180

3 100

4 453.6

5 0.12

Third

1 → c

2 → a

3 → d

4 → b

Fourth

Number of bags = $832.5 \div 0.45 = 1,850$ bags

Unit 6

Concept 1

Lessons 1-4

1 1 4.7 2 5.9 3 4.99

4 22.8

5 1.68

6 3

7 40

8 0.4

9 30.2

10 33.8

11 17.1

12 1.41

13 7.5

14 0

15 5

2 1 25

2 7.3

3 0.75

4 200

5 12.2

6 0

7 30.5

8 3.97

9 81.9

10 32

11 31.3

12 2.1

13 90

14 51

15 16

16 7.5

3 1 3.36

2 0.35

3 1.5

4 40

5 0.6

6 2.9

7 4

8 10

9 0.8

4 1 5

2 26.6

3 31.5

4 9.75

5 9

6 9

5 1 → c

2 → d

3 → a

4 → b

6 1 $(5.9 + 12.6) \times 10 = 18.5 \times 10 = 185$

2 $(5.25 + 3.1) \div 0.1 = 8.35 \div 0.1 = 83.5$

3 $0.542 \times 100 + 2.5 = 54.2 + 2.5 = 56.7$

4 $456 \div 10 + 4.4 = 45.6 + 4.4 = 50$

5 $(93 \div 0.3 + 114.7) \div 5 = (310 + 114.7) \div 5$
 $= 424.7 \div 5 = 84.94$

6 $[12.5 - (30.5 + 5.5 + 4)] \times 10$
 $= [12.5 - 40] \times 100 = 8,550$

7 $(7.6 \times 100 - 34.3 + 12.4) \div 0.1 = 738.1 \div 0.1$
 $= 7,381$

8 $4.5 \div 0.1 + 5.5 \times 10 = 45 + 5.5 \times 10$
 $= 45 + 55 = 100$

- 7 **1** $(16.5 - 1.5) \div 5 = 3$ kg
2 $2.5 \times 14 + 54.2 = 35 + 54.2 = 89.2$ km
3 $6 \times 12 \div 8 = 9$ balloons
- 8 **1** 20, 23, 26 Rule: $n + 3$
2 33, 38, 43 Rule: $n + 5$
3 34, 30, 26 Rule: $n - 4$
4 40, 30, 20 Rule: $n - 10$
5 64, 128, 256 Rule: $n \times 2$
6 243, 729, 2,187 Rule: $n \times 3$
7 16, 8, 4 Rule: $n \div 2$
- 9 **1** 8, 10, 27 Rule: $n - 7$
2 20, 38, 48 Rule: $n - 8$
3 8, 11, 13 Rule: $n + 3$
4 8, 9, 10 Rule: $n + 5$
5 13, 11, 15 Rule: $n \div 3$
6 18, 9, 12 Rule: $n \times 3$
7 3, 18, 22 Rule: $n \div 2$
8 18, 24, 30 Rule: $n \times 3$
- 10 **1** 3, 25, 7, 45, 11
2 9, 9, 45, 24, 81
3 16, 20, 24, 28, 32
4 8, 9, 10, 11, 12

Assessment on Concept 1

First

- 1** **a** 8 **2** **b** 0.6
3 **b** $(3.5 + 3.7) \times 0.8$ **4** **d**
5 **c** $5.6 + 0.5 - 0.6$ **6** **c** $n \times 4$
7 **a** $n - 12$

Second

- 1** 11.2 **2** 20 **3** 48.4

Third

$$(15.75 - 3.75) \div 16 = 0.75 \text{ L}$$

Guide Answers

Assessments on Units

Assessment on Unit

1

First

- 1 c Forty-five thousand and four hundredths
- 2 a 6,020,400,080
- 3 b 7.52
- 4 a 57.024
- 5 c 48.0
- 6 c $3 + 0.07$
- 7 d 8.523
- 8 b $<$
- 9 c $0.3 - 0.25$
- 10 c $0.22 + 0.1$

Second

- 1 65,000,000.005
- 2 Hundredths, 0.09
- 3 5.647
- 4 43.8
- 5 420.108
- 6 459.5
- 7 66
- 8 4
- 9 0.38
- 10 1

Third

- 1 → b
- 2 → a
- 3 → d
- 4 → e
- 5 → c

Fourth

- 1 $<$
- 2 $<$
- 3 $>$
- 4 $>$
- 5 $<$

Fifth

- 1 $25,327 + 47,128 = 72,455$ liters
- 2 $446.3 - 267.53 = 178.77$ km
- 3 $70.45 + 67.40 = 137.85$ pounds
 $342.5 - 137.85 = 204.65$ pounds

Assessment on Unit

2

First

- 1 c an equation
- 2 a $23.25 + x = 35.5$
- 3 b $(26.3 - 10.04) - 12.4$
- 4 b $y = 2.63 - 1.2$
- 5 d other
- 6 a $2 \times 2 \times 2$
- 7 d their product
- 8 c 9
- 9 a 12
- 10 d 10, 15

Second

- 1 1.989
- 2 odd, 2
- 3 2.23
- 4 7
- 5 $4.02 + a = 12$
- 6 1, 5, 25
- 7 5×5
- 8 30
- 9 0
- 10

S	
0.12	7.25

Third

GCF = 6 LMC = 36

Fourth

GCF = 5 groups
5 bouquets
5 blue roses and 3 red roses

Accumulative Assessment 1 on Units 1&2

First

- 1 Hundredths 2 15.89
3 2, 3, 3 4 0

Second

- 1 d 0.425 2 c $4 + 0.06$
3 c 2 4 d 4

Third

- 1 > 2 <
3 < 4 <

Fourth

- 1 $100.3 + 64.7 = 165$ km
 $225 - 165 = 60$ km
2 GCF = 8, LCM = 48

Accumulative Assessment 2 on Units 1&2

First

- 1 2, even 2 23, 29
3 350.208 4 5,000,030,000.099

Second

- 1 c $3.5 + m = 8.7$
2 c 7.825
3 a >

Third

- 1 x 2 ✓ 3 ✓

Fourth

GCF = 4 groups
4 girls and 3 boys

Assessment on Unit

3

First

- 1 b = 2 c <
3 a 4 c
5 b 62×57 6 a
7 b 8 c $4,095 \times 46$
9 c 1,000 10 a 12×260

Second

- 1 900,000 2 10,000 3 7
4 100 5 20, 3 6 3,504
7 65×38 8 990 9 60,240
10 3,016

Third

- 1 → c 2 → a
3 → d 4 → b

Fourth

- 1 382,644 2 144,504
3 402,536

Fifth

- $20 \times 140 = 2,800$ g
 $20 \times 120 = 2,400$ mL
 $2,400 \times 35 = 84,000$ mL = 84 L

Accumulative Assessment 1 on Units 1-3

First

- 1 $0.4 - 0.025 = 0.375$ 2 7
3 10, 2, 5, 5

Second

- 1 c 21×16 2 a 12.084 3 c 12

Third

- 1 16,944 2 9,936 3 192,256

Guide Answers

Fourth

1 $\times$

2 $\checkmark$

3 $\checkmark$

Fifth

$$17 + 19 = 36 \text{ students}$$

$$36 \times 25 = 900 \text{ students}$$

Accumulative Assessment 2 on Units 1-3

First

1 **c** the product of the two numbers

2 **b**

3 **d** 0.06

Second

1 2,346

2 61

3 4.77

Third

1 =

2 <

3 >

Fourth

1 $\rightarrow$ **b**

2 $\rightarrow$ **c**

3 $\rightarrow$ **a**

Fifth

1 $23 \times 235 = 5,405$ piasters

2 GCF = 6, LCM = 36

Assessment on Unit 4

First

1 **c** 428

2 **b** 323×25

3 **a**

4 **c** 600

5 **a** 24,000

6 **b** 50

7 **d** 207

8 **b** 65

9 **d** 0

10 **a** 8,935

Second

1 24,000

2 80

3 3,004

4 5,012

5 8

Third

1 314

2 1,034

3 86 , 86

Fourth

1 =

2 >

3 =

4 >

5 <

Fifth

1 $4,530 \div 15 = 302$ pounds

2 $570 + 600 = 1,170$ students

$1,170 \div 26 = 45$ students

Accumulative Assessment 1 on Units 1-4

First

1 $0.03 + 0.006$ 2 1, 3, 5, 15

3 4

4 72, 8, 8

Second

1 **c** prime

2 **c** 0.09

3 **a** <

4 **d** 12

Third

1 124

2 34 (R15)

Fourth

1 $288 \div 24 = 12$ pounds

2 $1.45 - 1.39 = 0.06$ m

3 GCF = 3, LCM = 18

Accumulative Assessment 2 on Units 1-4

First

1 806

2 131,874

3 15.647

4 618.147

Second

1 **c** Tenths

2 **b** 8

3 **a** 0

4 **a** $16,884 \div 42$

Third

1 >

2 <

3 =

4 <

Fourth

- 1 LCM = 24 days
2 1.205, 10.25, 12.05, 120.5, 1,205

Assessment on Unit

5

First

- 1 a 0.036 2 b 4.5
3 c 0.3×0.2 4 a
5 d 0.015 6 d 100
7 c 3.624 8 b 0.24×6.2
9 a 10 d 4.5×10

Second

- 1 12 2 $12 \times 28 = 336$
3 $0.29 \times 1,000 = 290$
4 0.96 5 9.32
6 0.1 7 20,000
8 100 9 0.02
10 8

Third

- 1 = 2 >
3 = 4 <

Fourth

- 1 15.725 2 396.592
3 294.784 4 91
5 5 6 2.54

Fifth

- 1 $3 \times 4.75 = 14.25$ pounds
 $4 \times 1.25 = 5$ pounds
 $14.25 + 5 = 19.25$ pounds
2 $17 \times 2.25 = 38.25$ pounds
 $50 - 38.25 = 11.75$ pounds
3 $243.75 \div 0.75 = 325$ bottles
4 Width = $10.25 \div 4.1 = 2.5$ m.
 $P = (2.5 + 4.1) \times 2 = 13.2$ m.

Accumulative Assessment 1
on Units 1-5

First

- 1 b 10 2 d 54 3 d 3

Second

- 1 7.32 2 0.654
3 1, 2, 4, 7, 14, 28

Third

- 1 2.4 2 5.145
3 70.07 4 25.35

Fourth

- 1 < 2 <
3 <

Fifth

$1.035 - 0.825 = 0.21$ kg

Accumulative Assessment 2
on Units 1-5

First

- 1 c 9.75
2 b 5
3 a the sum of the two numbers
4 b 1,000

Second

- 1 708.309 2 6, 12, 18, 24, 30
3 0.918

Third

- 1 2.45 2 753.45
3 0.815 4 20

Fourth

- 1 = 2 <
3 > 4 >

Guide Answers

Assessment on Unit

6

First

- 1 a 9.5
- 2 b $6 - 2.7$
- 3 c $1.5 \times 1.2 - 0.5$
- 4 b divide 2.5 by 0.5, then add 1.2
- 5 c $1.3 + 0.3 - 0.5$
- 6 a $n + 11$
- 7 c 13
- 8 b 2, 0.4, 0.08, 0.016
- 9 b 1
- 10 n $n \times 3 + 1$

Second

- 1 99 2 5.5
 3 26, 42 4 18, 21 5 10

Third

- 1 $(3.62 - 2.1) \times 3 = 1.52 \times 3 = 4.56$
- 2 $85 \div 0.5 + 136.7 = 170 + 136.7 = 306.7$

Fourth

- 1 2, 4.5, 7, 9.5, 12
- 2 5, 7.5, 12.5, 22.5, 42.5
- 3 40, 200, 1,000, 5,000, 25,000

Fifth

$$38,700 \div 120 = 322.5 \text{ m}$$

Accumulative Assessment 1

on Units 1-6

First

- 1 0.38 2 7
3 33.8 4 14.8

Second

- 1 a an equation 2 b 4×807
3 b 25,025 4 b 0.01

Third

- 1 d 2 a
- 3 b 4 e 5 c

Fourth

- 1 13, 11, 15 rule $n \div 3$
2 50.96 3 23

Accumulative Assessment 2

on Units 1-6

First

- 1 0.4 2 28
3 4

	X	40	5
4	70	2,800	350
	5	200	25

Second

- 1 b $5 + 3.21$ 2 a 7
3 a 0 4 b 2, 3.5, 5, 6.5, 8

Third

- 1 c
 - 2 d
 - 3 a
 - 4 b

Fourth

- 1 8, 11, 13 Rule: $(n + 3)$
- 2 105.24
- 3 $115 \times 45 = 5,175$